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INTERACTIONAL AERODYNAMICS OF THE SINGLE ROTOR HELICOPTER CONF1--ETC(U)

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INTERACTIONAL AERODYNAMICS OF THE SINGLE ROTOR HELICOPTER CONFIGURATION.

VOLUME VII-B, Frequency Analyses of Wake Split-Film Data, Basic Configuration Wake Explorations.

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Philip F./Sheridan

Boeing Vertol Company
P.O. Box 16858
Philadelphia, Pa. 19142

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Fort Eustis, Va. 23604

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APPLIED TECHNOLOGY LABORATORY POSITION STATEMENT

In 1975 a wind tunnel test program was conducted in the Boeing-Vertol 20-foot V/STOL Wind Tunnel on a 1/5th-scale UTTAS model to investigate and find solutions for several aerodynamic problems encountered during the UTTAS flight-testing. Specifically, these tests focused upon (a) the structure of the hub/rotor wake in the vicinity of the empennage, (b) the formulation of the ground vortex and its relation to hub loads and fuselage loads during transition, and (c) the occurrence of vibratory air pressures from the blade passing over the fuselage. Only portions of the above-mentioned wind tunnel test data were reduced and analyzed in addressing the flight-test problems of the UTTAS aircraft.

Under Contract DAAJ02-77-C-0020, Boeing-Vertol completed analyses on the data to understand more completely the aerodynamic interactions that are involved and to formulate instructions for the guidance of designers in these respects. The results of these studies are applicable to all existing and future single-rotor/tail rotor helicopters. The data have been segregated according to aerodynamic interactions and associated phenomena/problem areas. From this body of knowledge, a generalized set of design guidelines meaningful to the single-rotor helicopter design concept formulation were developed and are included in these reports.

Mr. Robert P. Smith of the Aeronautical Technology Division, Aeromechanics Technical Area, served as project engineer for this effort.

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)		
<p>This is the second of seven sub-volumes of Volume VII containing spectrographs of the model helicopter hub/rotor wake as it was modified by various aerodynamic devices. This sub-volume deals with wake characteristics of the baseline configurations.</p>		

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PREFACE

The entire report describing the investigation of **INTERACTIONAL AERODYNAMICS OF THE SINGLE-ROTOR HELICOPTER CONFIGURATION** comprises eight numbered volumes bound as 33 separate documents. The complete list of these documents is as follows:

Volume I, Final Report

Volume II, Harmonic Analyses of Airframe Surface Pressure Data

- A - Runs 7-14, Forward Section
- B - Runs 7-14, Mid Section
- C - Runs 7-14, Aft Section
- D - Runs 15-22, Forward Section
- E - Runs 15-22, Mid Section
- F - Runs 15-22, Aft Section
- G - Runs 23-33, Forward Section
- H - Runs 23-33, Mid Section
- I - Runs 23-33, Aft Section

Volume III, Flow Angle and Velocity Wake Profiles in Low-Frequency Band

- A - Basic Investigations and Hubcap Variations
- B - Air Ejector Systems and Other Devices

Volume IV, One-Third Octave Band Spectrograms of Wake Split-Film Data

- A - Buildup to Baseline
- B - Basic Configuration Wake Explorations
- C - Solid Hubcaps
- D - Open Hubcaps
- E - Air Ejectors
- F - Air Ejectors With Hubcaps; Wings
- G - Fairings and Surface Devices

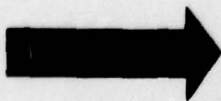
Volume V, Harmonic Analyses of Hub Wake

Volume VI, One-Third Octave Band Spectrograms of Wake Single Film Data

- A - Buildup to Baseline
- B - Basic Configuration Wake Exploration
- C - Hubcaps and Air Ejectors

Volume VII, Frequency Analyses of Wake Split-Film Data

- A - Buildup to Baseline
- B - Basic Configuration Wake Explorations
- C - Solid Hubcaps



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- D - Open Hubcaps
- E - Air Ejectors
- F - Air Ejectors With Hubcaps; Wings
- G - Fairings and Surface Devices

Volume VIII, Frequency Analyses of Wake Single Film Data

- A - Buildup to Baseline
- B - Basic Configuration Wake Exploration
- C - Hubcaps and Air Ejectors

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INTRODUCTION

Volume VII presents an array of machine plotted graphs of wake angle and velocity versus frequency in the band from 4 to 240 Hz derived from the split film transducers. This encompasses data in the spectrum through 10 times rotor speed which is 1433 RPM or 23.88 Hz.

The graphs showing wake frequency spectra are sequenced in the same order as the Outline of Wake Investigations (Table I). These graphs are distributed among Volumes VII-A through VII-G by the major categories of Table I in the following arrangement:

Volume VII-A	-	Build-up to Baseline
Volume VII-B	-	Basic Configuration
Volume VII-C	-	Effect of Hub Caps Sections 1 & 2
Volume VII-D	-	Effect of Hub Caps Sections 3 & 4
Volume VII-E	-	Effect of Hub Caps Section 5 and Effect of Air Ejectors
Volume VII-F	-	Air Ejectors with Open Hub Caps and Effect of Wings and Misc. Section 1
Volume VII-G	-	Effect of Wings and Misc. Sections 2 & 3

The Table I outline and other material is included for reference and as context to the work of each sub-volume. Table 2, the List of Test Runs, arranges the runs in numerical order and gives pertinent text parameters.

The Index of Rake Positions, Table 3, lists the hot film transducer rake positions in the model coordinate system for each run and its test points. The main feature of Table 3 is the indexing of the test point number to the model water line station and butt line as it varied from run to run. The table groups the runs as they shared the indexing correspondence of point with position. It is emphasized that the runs in a group do not necessarily all share the same number of test points but they do have same correspondence within their respective ranges of test points.

The orientation of the rake is shown pictorially in Figures 1 through 6 for the various test runs. Figure 7 presents a scaled drawing of the model with reference to the three-axis coordinate system.

TABLE 1			
OUTLINE OF WAKE INVESTIGATIONS			
Description	Configuration Code	Run No.	Base-line
<u>Build-up to Baseline</u>			
1. Nacelles removed	$K_{13}+H_1-N$	149	150
2. Blades off, rotating hub	$K_{13}-M+H_{1.0}$	160	156
3. " " , non-rotating hub	$K_{13}-M+H_{1.0}$	158	156
4. " " , hub off	$K_{13}-M-H_{1.0}$	159	156
<u>Basic Configuration</u>			
<u>1. Wake Explorations near Empennage</u>			
(a) 15" Long. + traverse at T/R C.L.	K_{11}	111	---
(b) 9" Vert. + " above T/R "	"	112	---
(c) 2" " " in vortex	"	113	---
(d) 8" " " (continue 112)	"	114	---
(e) 13" " " behind stab.	"	115	---
(f) Lateral traverse, left stab. (One T.P. only)	"	116	---
(g) Same continued	"	117	---
(h) Same continued (One T.P. only)	"	118	---
(i) Lateral traverse right stab.	"	119	---
(j) T/R effect on wake	$K_{11}+T_2^0$	121	115
<u>2. Climb/Descent Studies</u>			
(a) Climb 900 FPM	K_{11}	135	---
(b) Descent 800 FPM	"	136	---
<u>Effect Of Hub Caps</u>			
<u>1. Solid Caps on Canister</u>			
(a) 7.6" diam. 2.17" ht. soft Pitch Arms	$K_{11}-H_{1.0}+H_{1.2}$	137	136
(b) 7.6" diam. 2.17" ht. stiff Pitch Arms	$K_{13}+H_{1.2}$	153	156
(b) 7.6" diam. 2.45" ht. flt. test config.	$K_{13}+H_{1.2.1}+I_1$ $+E_{1.0}$	207	188

TABLE 1 (CONTINUED)

OUTLINE OF WAKE INVESTIGATIONS

Description	Configuration Code*	Run No.	Base-line
<u>Effect of Hub Caps (Continued)</u>			
2. <u>Solid Caps Raised Above Canister</u>			
(a) 7.6" diam. 2.45" ht. 70" depth, .55 gap	H _{1.2.2} +I ₁ +E _{1.0}	208	188
(b) 10.0" diam. 3.25" ht. 1.55" depth, .50" gap	H _{1.8.1} +I ₁ +E _{1.0}	189	188
(c) 10.0" diam. 4.125" ht. 2.05" depth, .875" gap	H _{1.8.2} +I ₁ +E _{1.0}	190	188
(d) Repeat of 189	" " "	210	188
3. <u>Open Caps Without Underbody</u>			
(a) 10.0" diam. 1.25" gap, blades	H _{1.0.2} +I ₁ +E _{1.0}	193	188/166
(b) " " " gap, no blades	H _{1.0.1} -M	166	158
(c) " " 2.05" gap, blades	H _{1.14.1} +I ₁ +E _{1.0}	211	188
(d) " " 1.75" gap, no blades	H _{1.0.1} -M	165	158
(e) " " 1.87" gap, blades	H _{1.0.3} +I ₁ +E _{1.0}	191	188
(f) 16" diam. 2.00" gap, blades	H _{1.7.1}	168	156/167
(g) " " " gap, no blades	H _{1.7.1} -M	167	158
(h) " " 4.00" gap, blades	H _{1.7.2}	169	156
4. <u>Open Caps with Underbody</u>			
(a) 7.6" diam. 1.25" gap	H _{1.11.1} +I ₂ +E _{1.0}	194	188
(b) " " " "	H _{1.11.1} +I ₂ +E _{4.0}	198	188
(c) " " " " center post	H _{1.11.2} +I ₂	202	194
(d) 10.0" diam. .5" gap, no blades	H _{1.5.1} -M	164	158
(e) " " 1.25" gap, no blades	H _{1.5.2} -M	161	158
(f) " " 2.0" gap, no blades	H _{1.5.4} -M	163	158
(g) " " 4.0" gap, no blades	H _{1.5.3} -M	162	158
(h) " " 1.25" gap	H _{1.5.2}	154	156/161
*Basic Code is K13.			

TABLE 1 (CONTINUED)

OUTLINE OF WAKE INVESTIGATIONS

Description	Configuration Code*	Run No.	Base-line
<u>5. Miscellaneous Hub Covers</u>			
(a) Hub fairing 16" diam.	H _{1.3}	151	150
(b) Wham-O-Frisbee 10" diam.	H _{1.9.0} +E _{1.2}	182	181
(c) Fab. glass Frisbee 16" diam.	H _{1.9.1} +E _{1.2}	183	181
<u>Effect of Air Ejectors</u>			
1. Basic system no blowing	H _{1.0} +E _{1.0}	172	156
2. " " 40 psi	" "	173	156/172
3. " " 150 psi	" "	174	156/172
4. Wide chord shroud 40 psi	H _{1.0} +E _{2.5.1}	175	156/173
5. Wide " " 150 psi	" "	176	156/174
6. W/C shroud w. lip 40 psi	H _{1.0} +E _{3.5.2}	184	156/173
7. Same Contoured Parallel 150 psi	H _{1.0} +E _{3.5.4}	187	156/174
8. Bifurcated duct 0 psi	H _{1.0} +E _{5.0}	203	156
9. " " 40 psi	" "	204	156/203
10. " " 150 psi	" "	205	156/203
<u>Air Ejectors with Open Hub Caps with Underbodies</u>			
1. 7.6" diam. 1.25" gap, 0 psi	H _{1.11.1} +I ₂ +E _{1.0}	194	188/172
2. " " " " 20 psi	" " "	195	188
3. " " " " 40 psi	" " "	196	188/173
4. " " " " 150 psi	" " "	197	188/174
5. " " " " 0 psi	H _{1.11.1} +I ₂ +E _{4.0}	198	188/194
6. " " " " 40 psi	" " "	199	188/196
7. " " " " 150 psi	" " "	200	188/196
8. Same with center post	H _{1.11.2} +I ₂ +E _{4.6}	201	188/200
9. 10.0" diam. 2.0" gap wide ch'd. shroud (150 psi)	H _{1.5.4} +E _{2.5.1}	177	156/176
<u>Effect of Wings and Misc.</u>			
1. Wings			
(a) Nacelle-mounted stub wing	H _{1.0} +W _{1.0} +E _{1.1}	178	181
(b) Single slotted flapped wing	H _{1.0} +W _{3.0} +E _{1.0}	180	181
(c) Dougle slotted flapped wing	H _{1.0} +W _{2.0} +E _{1.0}	179	181
(d) Boom-mounted stub wing	H _{1.0} +W _{4.0}	186	156
*Basic Code is K13.			

TABLE 1 (CONTINUED)

OUTLINE OF WAKE INVESTIGATIONS

Description	Configuration Code*	Run No.	Base-line
2. Crown Fairings			
(a) Flat top behind shaft	$K_{11}+D_1$	140	138
(b) Round top behind shaft	$K_{11}+D_2$	141	138
(c) Extended flat top fairing	H_1+D_4	170	156
(d) Flat top + 16" cap, 4" gap	$H_1 \cdot 7.2 + D_4$	171	170
(e) Forward fairing/nacelle fairing	$P_1 \cdot 0$	152	156
3. Surface Devices			
(a) Vortex generators	$K_{11}+VG_{2.1}$	139	138
(b) Guidevane between nacelles	$K_{11}+FV_1$	142	138
(c) Longitudinal strakes	$H_1 \cdot 5.3 + S_4$	155	156
(d) 14% porosity spoiler	$K_{11}+X_1$	143	138
*Basic Code is K13 unless noted otherwise.			

TABLE 2
LIST OF TEST RUNS
BASIC INVESTIGATIONS OF THE HUB WAKE

RUN NO.	CONFIGURATION/CONDITION	VTUN KNOTS	RPM MR/TR	DISK LDG. psf	MODEL ANGLES		MR HT. h/d	TAIL ROTOR
					α°	ψ°		
111	K ₁₁ /15" Long. wake traverse at TR center line	80	1433/0	8	6.0	-2.0	∞	Off
112	" /9" Vert. wake traverse above TR center line	"	"	"	"	"	"	"
113	" /2" Vert traverse through MR vortex	"	"	"	"	"	"	"
114	" /8" Vert. traverse below TR center line	"	"	"	"	"	"	"
115	" /13" Vert. traverse behind stabilizer	"	"	"	"	"	"	"
116	" /Lateral traverse - left stabilizer	"	"	"	"	"	"	"
117	" /116 continued	"	"	"	"	"	"	"
118	" /116 continued	"	"	"	"	"	"	"
119	" /Lateral traverse - right stabilizer	"	"	"	"	"	"	"
121	K ₁₁ +T ₂ /Effect of tail rotor flow on wake	"	1433/4500	"	"	"	"	On
135	K ₁₁ /Wake in 900 fpm climb	"	"	"	-6.0	-4.5	"	Off
136	" /Wake in 800 fpm descent	"	"	"	6.0	+2.0	"	"

TABLE 2 (CONTINUED)
LIST OF TEST RUNS
EVALUATION OF WAKE-ALTERING DEVICES

RUN NO.	CONFIGURATION/CONDITION	VTUN KNOTS	RPM MR/TR	DISK LDG. psf	MODEL ANGLES		MR HT. h/d	TAIL ROTOR
					α°	ψ°		
137	K ₁₁ -H _{1.0} +H _{1.2} /Effect of 7.6 inch diam. solid hub cap	80	1433/0	8	6	-3.8	∞	Off
138	K ₁₁ /Repeat of base run	"	"	"	"	"	"	"
139	K ₁₁ +VG _{2.1} /Effect of vortex generators on aft crown	"	"	"	"	"	"	"
140	K ₁₁ +D ₁ /Flat-topped "doghouse" fairing on aft crown	"	"	"	"	"	"	"
141	K ₁₁ +D ₂ /Rounded-top fairing	"	"	"	"	"	"	"
142	K ₁₁ +FV ₁ /Deflection vane on crown between nacelles	"	"	"	"	"	"	"
143	K ₁₁ +X ₁ /Variable porosity spoiler	"	"	"	"	"	"	"
149	K ₁₃ +H ₁ -N ₁ /Effect of nacelles off also add stiff pitch arms (K ₁₃)	60	1075/0	4.5	"	"	"	"
150	K ₁₃ +H ₁ /60 knot baseline	"	"	"	"	"	"	"
151	K ₁₃ +H _{1.3} /16 inch diam. helmet fairing	"	"	"	"	"	"	"
152	K ₁₃ +P _{1.0} /Pylon and intake fairings	80	1433/0	8	"	"	"	"
153	K ₁₃ +H _{1.2} /Repeat 137 with K ₁₃ pitch arms	"	"	"	"	"	"	"

TABLE 2 (CONTINUED)

LIST OF TEST RUNS

EVALUATION OF WAKE-ALTERING DEVICES

RUN NO.	CONFIGURATION/CONDITION	V _{TUN} KNOTS	RPM MR/TR	DISK LDG. psf	MODEL ANGLES		MR HT. h/d	TAIL ROTOR
					α°	ψ°		
154	K ₁₃ +H _{1.5.2/10"} open hub cap, 7" underbody, 1.25" gap	80	1433/0	8	6	-3.8	∞	Off
155	K ₁₃ +H _{1.5.2+54} /Same as 154 except strakes on aft crown	"	"	"	"	"	"	"
156	K ₁₃ +H _{1.0} /Baseline with K ₁₃ , i.e., stiff pitch arms	"	"	"	"	"	"	"
158	K ₁₃ -M+H _{1.0} /Wake studies with blades off, hub not rotating	"	0/0	"	"	"	"	"
159	K ₁₃ -M-H _{1.0} /Wake studies with hub off	"	"	"	"	"	"	"
160	K ₁₃ -M+H _{1.0} /Same as 158 except hub is rotating	"	1433/0	"	"	"	"	"
161	K ₁₃ -M+H _{1.5.2} /Repeat of 154 without blades	"	0/0	"	"	"	"	"
162	K ₁₃ -M+H _{1.5.3} /Same as 161 except 4" gap	"	"	"	"	"	"	"
163	K ₁₃ -M+H _{1.5.4} /Same as 161 except 2" gap	"	"	"	"	"	"	"
164	K ₁₃ -M+H _{1.5.1} /Same as 161 except 0.5" gap	"	"	"	"	"	"	"
165	K ₁₃ -M+H _{1.0.1/10"} open hub cap, no underbody, same cap vert. position as Run 154	"	"	"	"	"	"	"
166	K ₁₃ -M+H _{1.0.2} /Same as 165 with cap lowered by 0.5"	"	"	"	"	"	"	"

TABLE 2 (CONTINUED)
LIST OF TEST RUNS
EVALUATION OF WAKE-ALTERING DEVICES

RUN NO.	CONFIGURATION/CONDITION	VTUN KNOTS	RPM MR/TR	DISK LDG. psf	MODEL ANGLES		MR HT.	TAIL ROTOR
					α°	ψ°		
167	K ₁₃ -M+H _{1.7.1} /16" open cap, no underbody, 2" gap	80	0/0	8	6	-3.8	∞	Off
168	K ₁₃ +H _{1.7.1} /Blades on, same cap config. as 167	"	1433/0	"	"	"	"	"
169	K ₁₃ +H _{1.7.2} /16" open cap, no underbody, 4" gap	"	"	"	"	"	"	"
170	K ₁₃ +H _{1.0} +D _{4.0} /Extended flat top fairing on aft crown	"	"	"	"	"	"	"
171	K ₁₃ +H _{1.7.2} +D _{4.0} /Same fairing as 170, same cap as 169	"	"	"	"	"	"	"
172	K ₁₃ +H _{1.0} +E _{1.0} (0psi)/Basic air ejector zero blowing baseline	"	"	"	"	"	"	"
173	K ₁₃ +H _{1.0} +E _{1.0} (40 psi)/Same as 172 with 40 psi supply	"	"	"	"	"	"	"
174	K ₁₃ +H _{1.0} +E _{1.0} (150 psi)/Same as 172 with 150 psi supply	"	"	"	"	"	"	"
175	K ₁₃ +H _{1.0} +E _{2.5.1} (40 psi)/Ejector with wide chord shroud at 40 psi	"	"	"	"	"	"	"
176	K ₁₃ +H _{1.0} +E _{2.5.1} (150 psi)/Same as 174 with 150 psi supply	"	"	"	"	"	"	"
177	K ₁₃ +H _{1.5} ^{+E_{2.5.1}} ₁₇₆ (150 psi)/Same as 176 with 10" cap like 163	"	"	"	"	"	"	"
178	K ₁₃ +H _{1.0} +W _{1.0} +E _{1.1} (0 psi)/Nacelle mounted wing	"	"	"	"	"	"	"

TABLE 2 (CONTINUED)
LIST OF TEST RUNS
EVALUATION OF WAKE-ALTERING DEVICES

RUN NO.	CONFIGURATION/CONDITION	VTUN KNOTS	RPM MR/TR	DISK LDG. psf	MODEL ANGLES		MR HT. h/d	TAIL ROTOR
					α°	ψ°		
179	K13+H1.0+W2.0+E1.0 (0 psi)/Double slotted flapped wing	80	1433/0	8	6	-3.8	∞	Off
180	K13+H1.0+W3.0+E1.0 (0 psi)/Single slotted flapped wing	"	"	"	"	"	"	"
181	K13+H1.0+E1.2 (0 psi)/Baseline with ejector tube moved aft	"	"	"	"	"	"	"
182	K13+H1.9.0+E1.2 (0 psi)/Standard 10" frisbee	"	"	"	"	"	"	"
183	K13+H1.9.1+E1.2 (0 psi)/16" fabricated frisbee	"	"	"	"	"	"	"
184	K13+H1.0+E3.5.2 (40 psi)/Wide chord with lip at 40 psi	"	"	"	"	"	"	"
185	K13+H1.0+E3.5.2 (150 psi)/Same as 184 with 150 psi air	"	"	"	"	"	"	"
186	K13+H1.0+W4.0/Boom mounted stub wing	"	"	"	"	"	"	"
187	K13+H1.0+E3.5.4 (150 psi)/Like 185 with modified shroud	"	"	"	"	"	"	"
188	K13+H1.0+I1+E1.0 (0 psi)/Baseline with I ₁ instr. ring	"	"	"	"	"	"	"
189	K13+H1.8.1+I1+E1.0 (0 psi)/Solid cap, 10" diam. 3.25" height	"	"	"	"	"	"	"
190	K13+H1.8.2+I1+E1.0 (0 psi)/Same as 190 except + 4.12" height	"	"	"	"	"	"	"

TABLE 2 (CONTINUED)
LIST OF TEST RUNS
EVALUATION OF WAKE-ALTERING DEVICES

RUN NO.	CONFIGURATION/CONDITION	VTUN KNOTS	RPM MR/TR	DISK LDG. psf	MODEL ANGLES		MR HT.	TAIL ROTOR
					α°	ψ°		
191	K13+H1.0.2+I1+E1.0 (0 psi)/10" cap, no underbody, 1.87" gap	80	1433/0	8	6	-3.8	∞	Off
193	K13+H1.0.2+I1+E1.0 (0 psi)/10" cap, no underbody, 1.25" gap	"	"	"	"	"	"	"
194	K13+H1.11.1+I2+E1.0 (0 psi)/7.6" cap, underbody, 1.25" gap	"	"	"	"	"	"	"
195	K13+H1.11.1+I2+E1.0 (20 psi)/Same as 194 with 20 psi air	"	"	"	"	"	"	"
196	K13+H1.11.1+I2+E1.0 (40 psi)/Same as 194 with 40 psi air	"	"	"	"	"	"	"
197	K13+H1.11.1+I2+E1.0 (150 psi)/Same as 194 with 150 psi air	"	"	"	"	"	"	"
198	K13+H1.11.1+I2+E4.0 (0 psi)/Same as 194 except blowing tube 2" aft	"	"	"	"	"	"	"
199	K13+H1.11.1+I2+E4.0 (40 psi)/Same as 198 with 40 psi air	"	"	"	"	"	"	"
200	K13+H1.11.1+I2+E4.0 (150 psi)/Same as 198 with 150 psi air	"	"	"	"	"	"	"
201	K13+H1.11.2+I2+E4.0 (150 psi)/Same as 200 except center support cap	"	"	"	"	"	"	"
202	K13+H1.11.2+I2/Baseline with I2 and no blowing tube	"	"	"	"	"	"	"
203	K13+H1.0+E5.0 (0 psi)/Bifurcated air duct baseline	"	"	"	"	"	"	"

TABLE 2 (CONTINUED)

LIST OF TEST RUNS

EVALUATION OF WAKE-ALTERING DEVICES

[illegible]

TABLE 3					
INDEX TO RAKE POSITIONS					
RUN NUMBER	TEST POINT	WATER LINE	MODEL STATION	BUTT LINE	LOCATION FIGURE
111	20	53.5	103.1	-7.25	1
	21	"	"	"	
	22	"	105.0	"	
	24	"	107.0	"	
	26	"	109.0	"	
	28	"	111.0	"	
	30	"	112.9	"	
	32	"	114.9	"	
	34	"	116.9	"	
	36	"	118.9	"	
112	2	48.9	107.3	-7.25	1
	4	50.8	"	"	
	6	52.7	103.3	"	
	8	54.5	"	"	
	10	56.2	"	"	
	12	57.2	"	"	
113	2	51.7	103.3	-3.25	1
	4	52.3	"	"	
	6	52.8	"	"	
	8	53.3	"	"	
	10	53.9	"	"	
	11	53.3	"	"	
114	2	44.5	103.0	-3.25	1
	4	46.4	"	"	
	6	48.2	"	"	
	8	50.0	"	"	
	10	51.9	"	"	
115	3	52.9	124.7	-3.25	1
	4	52.0	"	"	
	6	50.0	"	"	
	9	48.0	"	"	
	10	46.0	"	"	
	12	44.1	"	"	
	14	42.1	"	"	
	16	53.0	"	"	
	18	54.0	"	"	
	20	55.0	"	"	

TABLE 3 (CONTINUED)
INDEX TO RAKE POSITIONS

RUN NUMBER	TEST POINT	WATER LINE	MODEL STATION	BUTT LINE	LOCATION FIGURE
116	7	36.9	100.5	-17.5	1
117	2 4 6 8 10	37.6 " 37.3 " "	100.5 " 99.6 " "	-16.0 -14.0 -12.0 -10.0 - 8.0	1
118	2	37.6	100.5	- 6.0	1
119	2 5 8 9 14 16 20 25	37.3 " " " " " 51.5 52.3	99.6 " " " " " 102.5 101.7	+ 6.0 8 10 " 14 16 17.5 -17.5	1
121	3 4 6 8 10	62.9 53.5 50.1 46.0 42.1	129.0 " " " "	+ 5.7 " " " "	2
135	2 4 6 8 10 12 14	56.9 54.5 52.5 50.5 48.5 46.5 44.5	106.3 " " " " " "	- 5.7 " " " " " "	3
136	2 4 6 8 10 12 14 17 18 19	56.5 54.5 52.5 50.6 48.5 46.5 44.5 37.1 39.0 41.0	104.0 " " " " " " " " "	- 8.0 " " " " " " " " "	4

TABLE 3 (CONTINUED)
INDEX TO RAKE POSITIONS

RUN NUMBER	TEST POINT	WATER LINE	MODEL STATION	BUTT LINE	LOCATION FIGURE
137	3	38.7	98.4	- 8.0	5
	5	39.9	"	"	
	7	42.0	100.5	"	
	9	44.0	"	"	
	11	46.0	103.6	"	
	13	48.0	"	"	
	15	50.0	"	"	
	17	52.0	"	"	
	19	54.0	"	"	
138-41, 143	2	38.8	98.4	- 8.0	5
	3	40.0	"	"	
	4	42.0	100.5	"	
	5	44.0	"	"	
	6	46.0	103.6	"	
	7	48.0	"	"	
	8	50.0	"	"	
	9	52.0	"	"	
	10	54.0	"	"	
142	7	37.8	98.4	- 8.0	5
	8	"	"	"	
	9	40.2	"	"	
	10	42.0	100.5	"	
	11	44.0	"	"	
	12	46.0	103.6	"	
	13	48.0	"	"	
	14	50.0	"	"	
	15	52.0	"	"	
	16	54.0	"	"	
	17	56.8	"	"	

TABLE 3 (CONTINUED)					
INDEX TO RAKE POSITIONS					
RUN NUMBER	TEST POINT	WATER LINE	MODEL STATION	BUTT LINE	LOCATION FIGURE
149-151	2	38.8	98.5	- 8.0	5
	3	40.0	"	"	
	4	42.0	100.6	"	
	5	44.0	"	"	
	6	46.0	103.5	"	
	7	48.0	"	"	
	8	50.0	"	"	
	9	52.0	"	"	
	10	54.0	"	"	
152-6, 158	2	42.9	97.9	0.0	6
161-4, 166	3	44.9	"	"	
167, 169-71	4	46.9	100.6	"	
175, 177-9	5	48.9	"	"	
180, 182, 184	6	50.9	104.6	"	
186-8, 190	7	52.9	"	"	
191, 193, 194	8	54.9	"	"	
196, 198, 201	9	56.9	"	"	
204, 207, 208					
211					
159	1	54.9	104.6	0.0	6
	2	52.9	"	"	
	3	50.7	"	"	
	4	48.6	100.6	"	
	5	46.7	"	"	
160, 203	5	42.9	97.9	0.0	6
	6	44.9	"	"	
	7	46.9	100.6	"	
	8	48.9	"	"	
	9	50.9	104.6	"	
	10	52.9	"	"	
	11	54.9	"	"	
165	3	44.9	97.9	0.0	6
	4	42.9	"	"	
	5	46.9	100.6	"	
	6	48.9	"	"	
	7	50.9	104.6	"	
	8	52.9	"	"	

TABLE 3 (CONTINUED)
INDEX TO RAKE POSITIONS

RUN NUMBER	TEST POINT	WATER LINE	MODEL STATION	BUTT LINE	LOCATION FIGURE
168, 183	4	42.9	97.9	0.0	6
	5	44.9	"	"	
	6	46.9	100.6	"	
	7	48.9	"	"	
	8	50.9	104.6	"	
	9	52.9	"	"	
	10	54.9	"	"	
172	3	42.9	97.9	0.0	6
	4	44.9	"	"	
	6	44.9	"	"	
	7	46.9	100.6	"	
	8	48.9	"	"	
	9	50.9	104.6	"	
	10	52.9	"	"	
	11	54.9	"	"	
173, 174, 176 185, 195, 197 199, 200, 205 210	1	42.9	97.9	0.0	6
	2	44.9	"	"	
	3	46.9	100.6	"	
	4	48.9	"	"	
	5	50.9	104.6	"	
	6	52.9	"	"	
	7	54.9	"	"	
181	2	42.9	97.9	0.0	6
	3	44.9	"	"	
	4	46.9	100.6	"	
	5	48.9	"	"	
	6	50.9	104.6	"	
	7	52.9	"	"	
	9	54.9	"	"	
	10	"	"	"	
	11	"	"	"	
	12	"	"	"	
	13	42.9	97.9	"	

TABLE 3 (CONTINUED)					
INDEX TO RAKE POSITIONS					
RUN NUMBER	TEST POINT	WATER LINE	MODEL STATION	BUTT LINE	LOCATION FIGURE
189	29	42.9	97.9	0.0	6
	30	44.9	"	"	
	31	46.9	100.6	"	
	32	48.9	"	"	
	33	"	"	"	
	34	50.9	104.6	"	
	35	"	"	"	
	36	48.9	100.6	"	
	37	50.9	104.6	"	
	38	52.9	"	"	
	39	54.9	"	"	
202	3	43.4	97.9	0.0	6
	4	44.9	"	"	
	5	46.9	100.6	"	
	6	48.9	"	"	
	7	50.9	104.6	"	

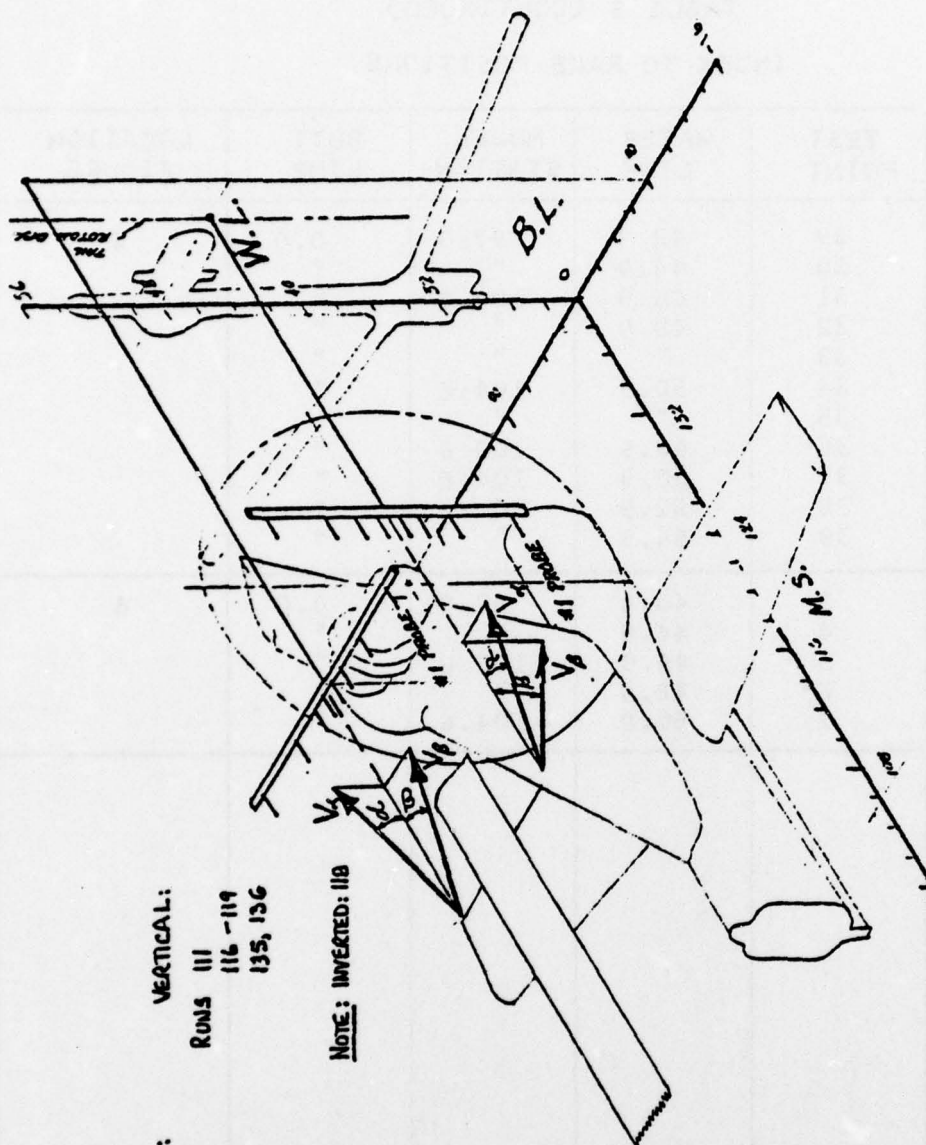


FIGURE 1 - RAKE ORIENTATION DIAGRAM

RUN 121

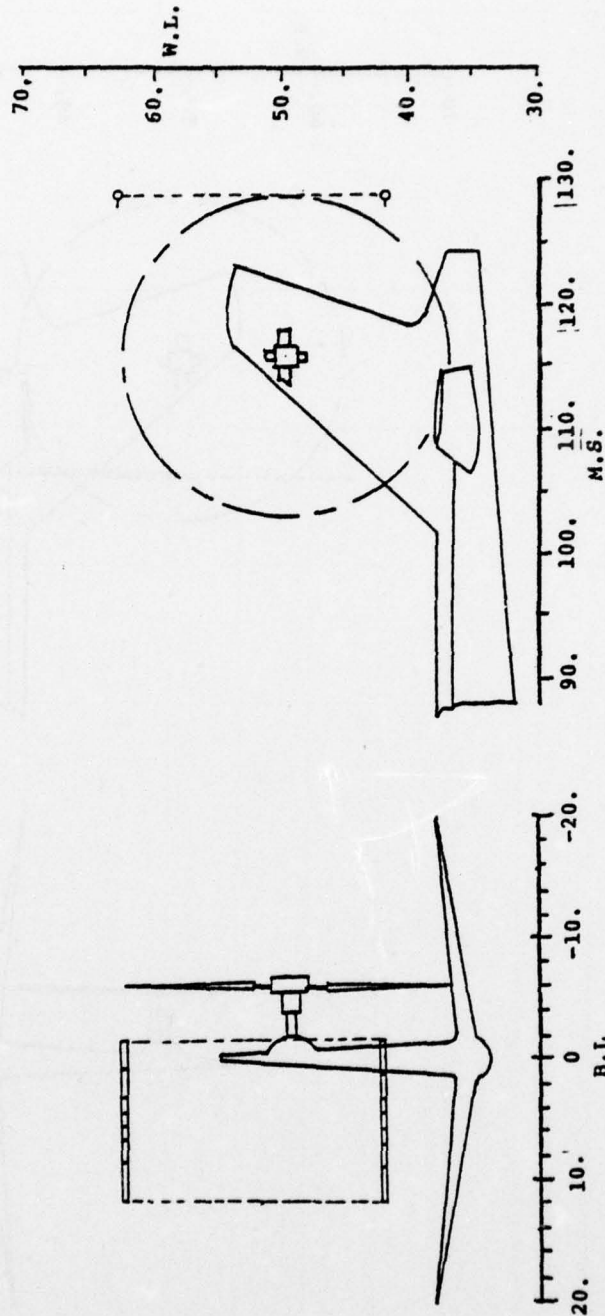


FIGURE 2 -HOT FILM RAKE LOCATIONS

RUN 135

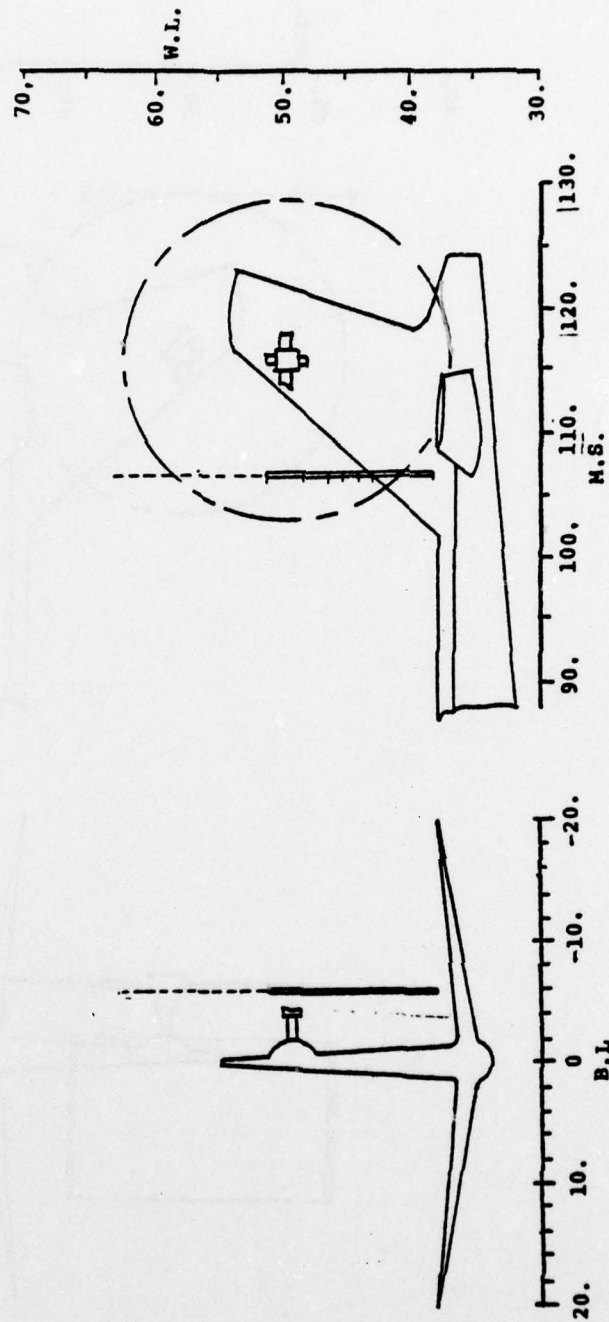


FIGURE 3 -HOT FILM RAKE LOCATIONS

RUN 136

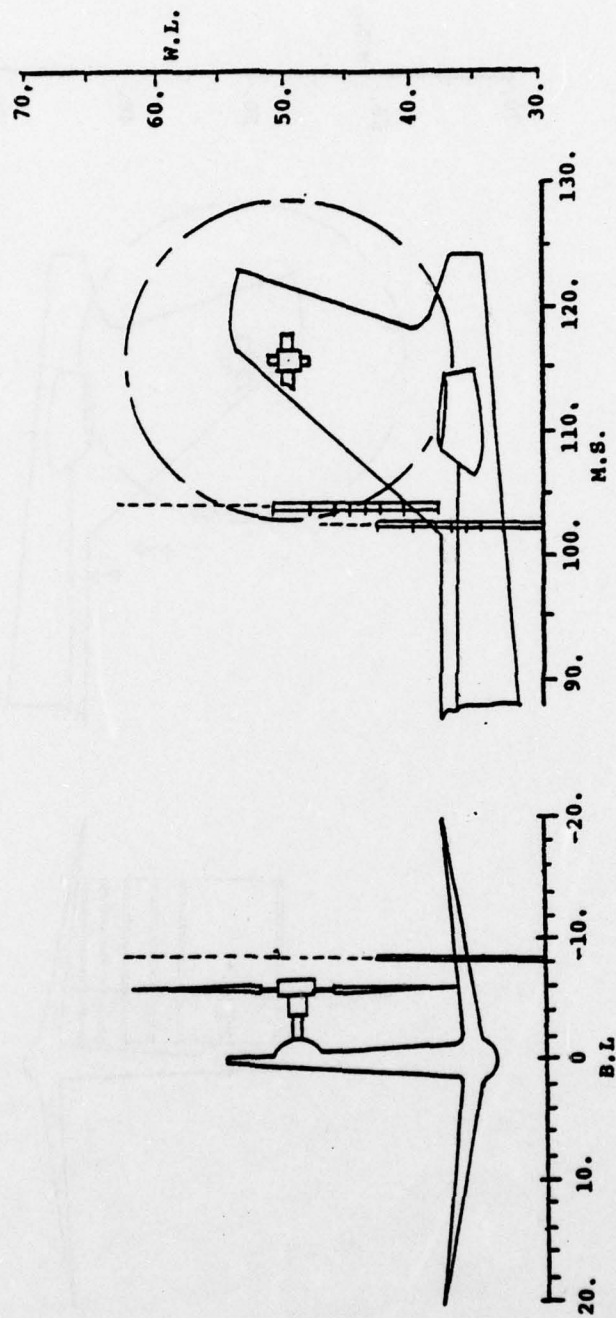


FIGURE 4 -HOT FILM RAKE LOCATIONS

RUN 137, 138, 139, 140, 141, 142,
143, 148, 149, 150, 151

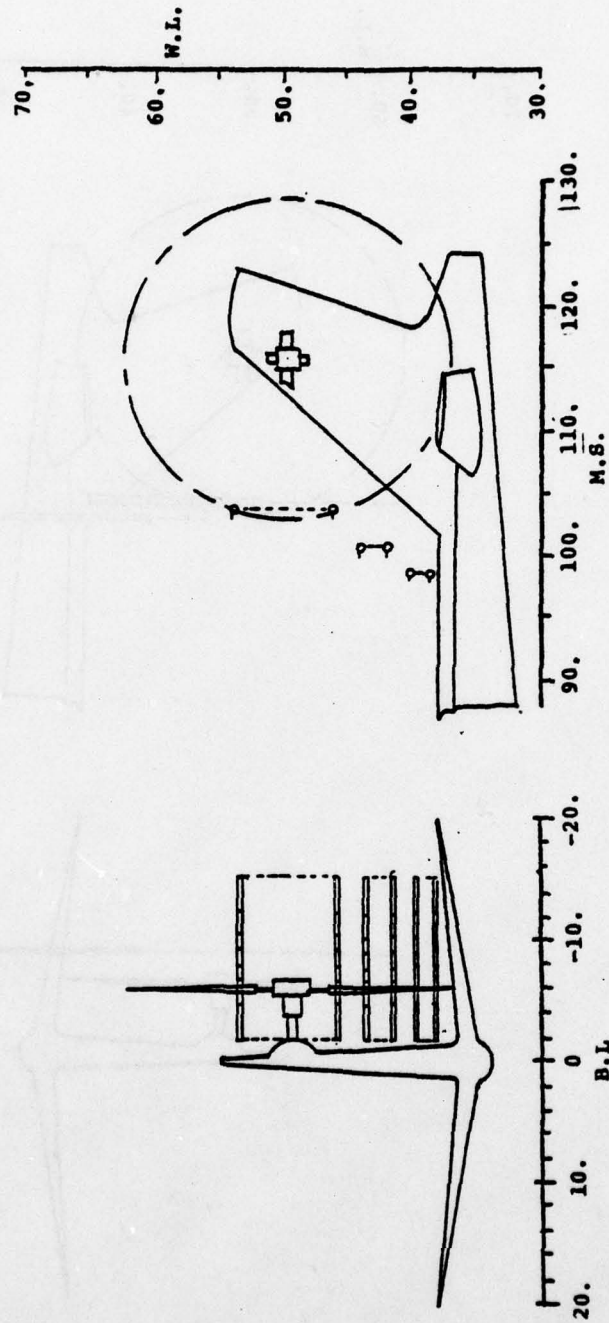


FIGURE 5 -HOT FILM RAKE LOCATIONS

RUN 152-156, 158-211

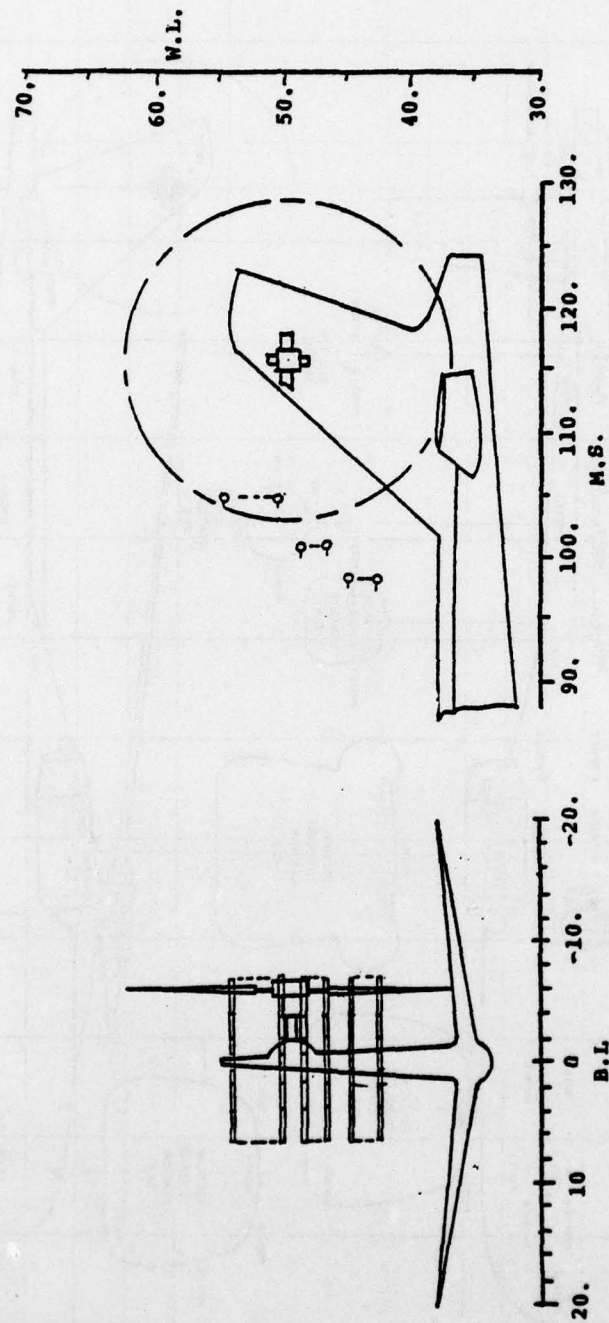
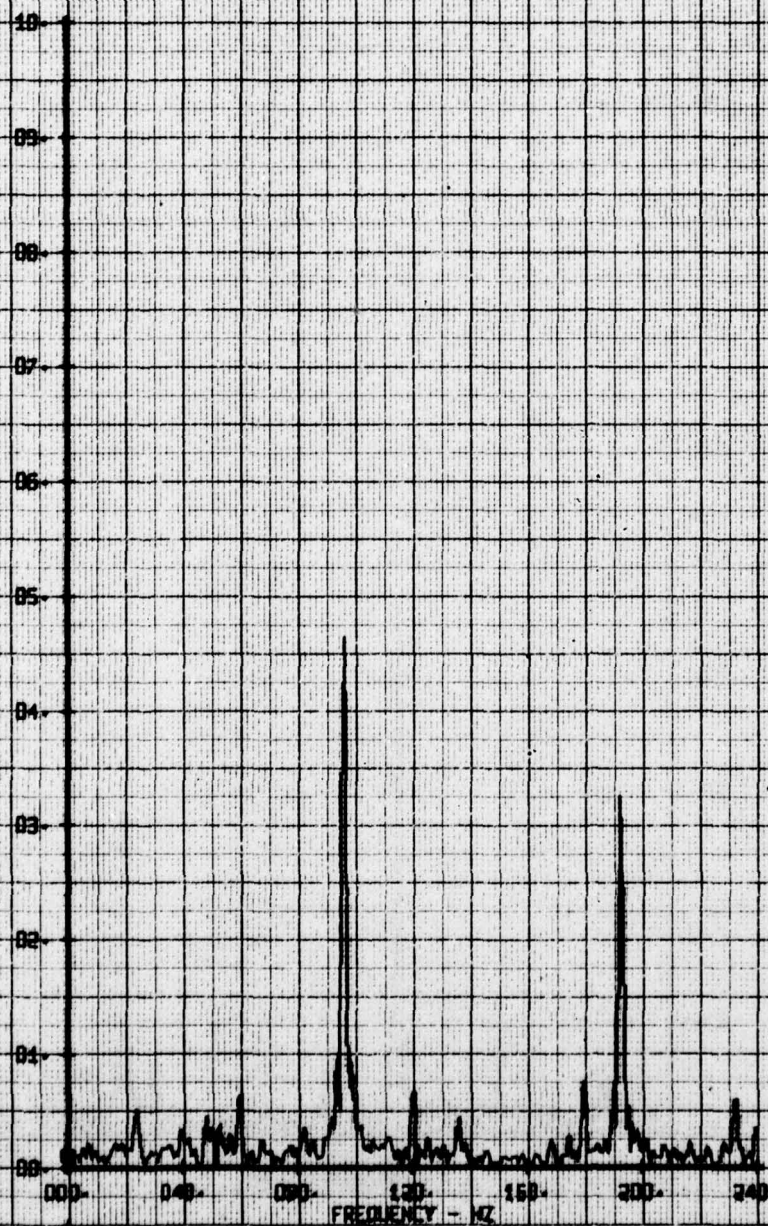


FIGURE 6 -HOT FILM RAKE LOCATIONS

HOT FILM WIRE FREQUENCY ANALYSIS
BASE CONFIG- TRAVERSE AT 1/4 C-J.
RUN 111 TP 20

LEGEND
CH
05 ALPHA

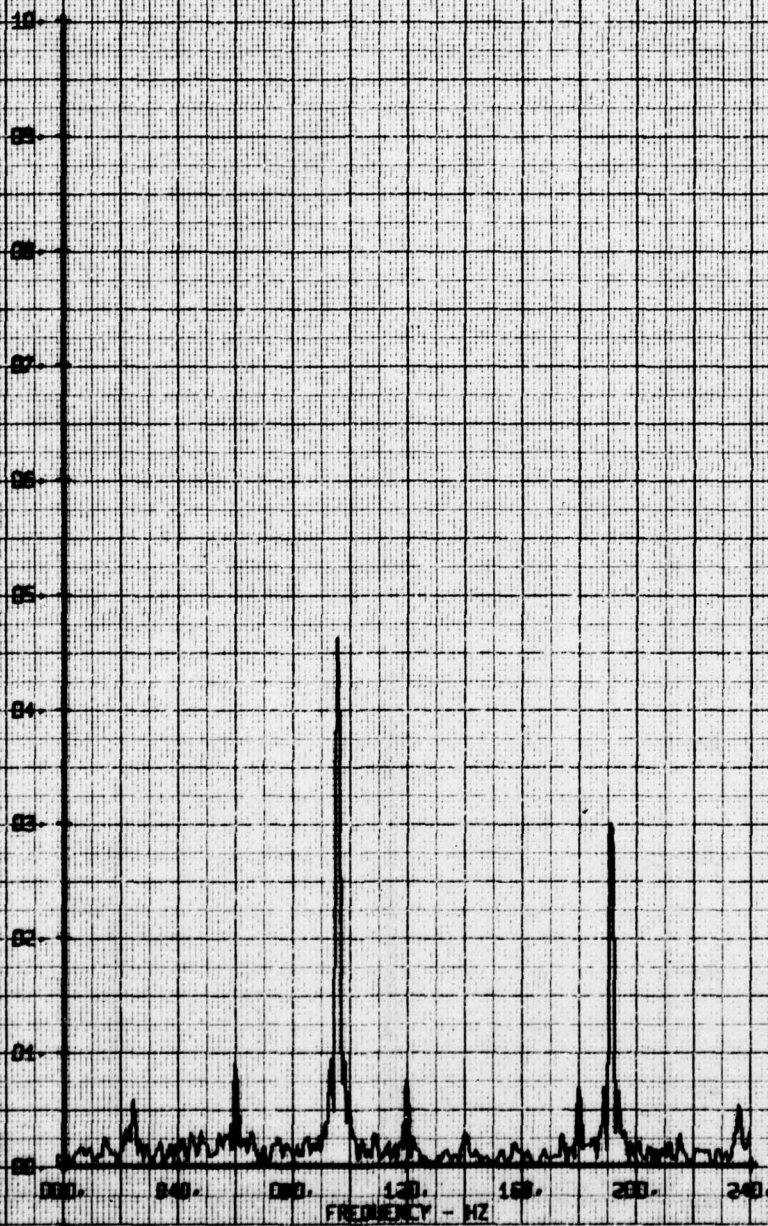
VERTICAL FLOW ANGLE, ALPHA - DEGREES



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG: TRAVERSE AT 1/4 C-L-
RSM 111 TP 23

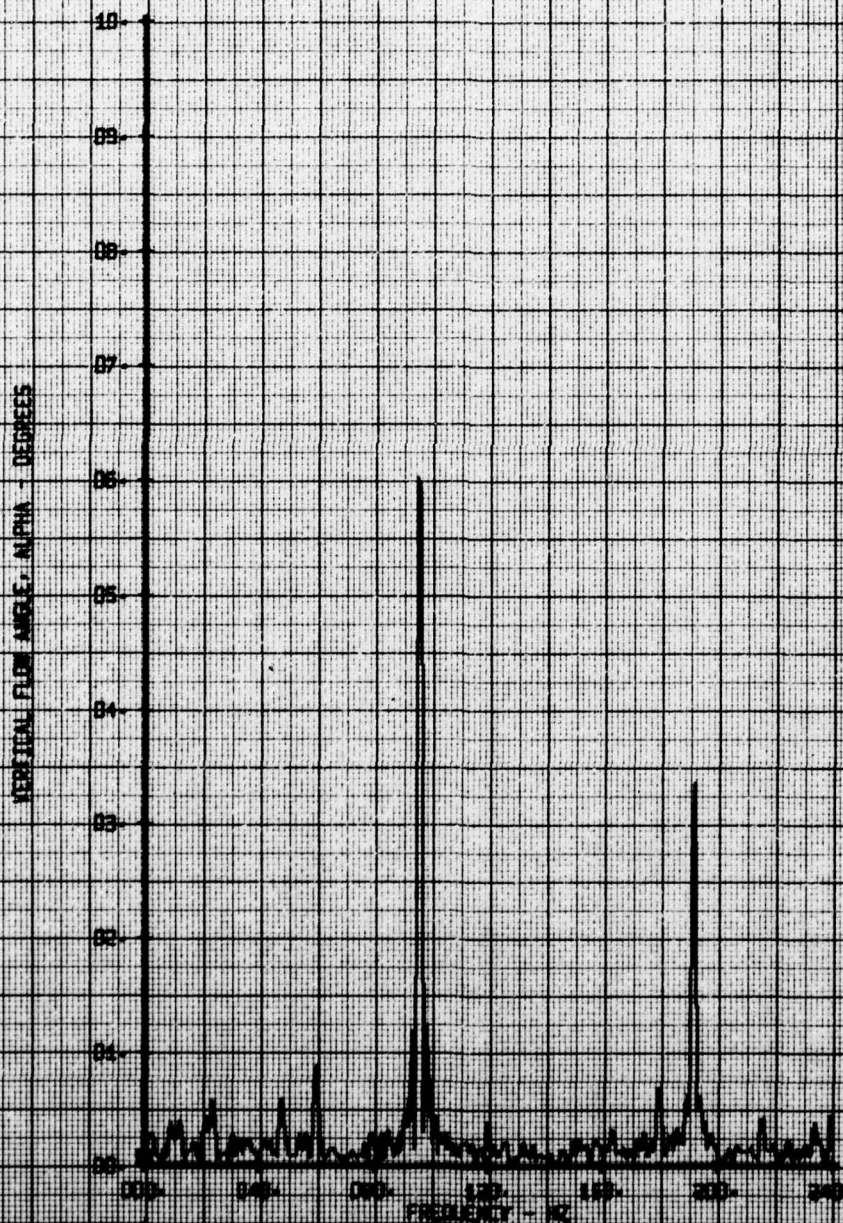
LEGEND
CH
B5 ALPHA

VERTICAL FLOW ANGLE, ALPHA - DEGREES



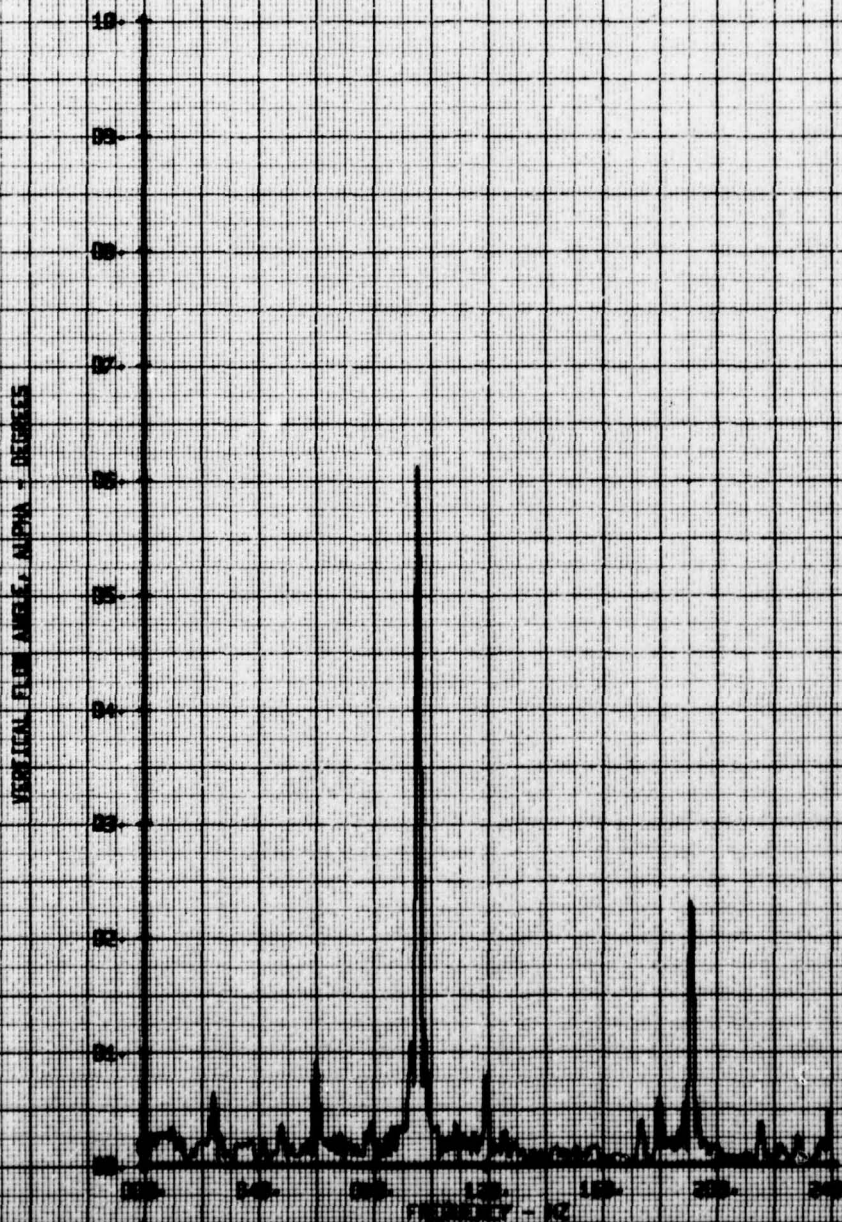
HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE AT T/R C-L-
RUN 111 TP 22

LEGEND
CH
55 ALPHA



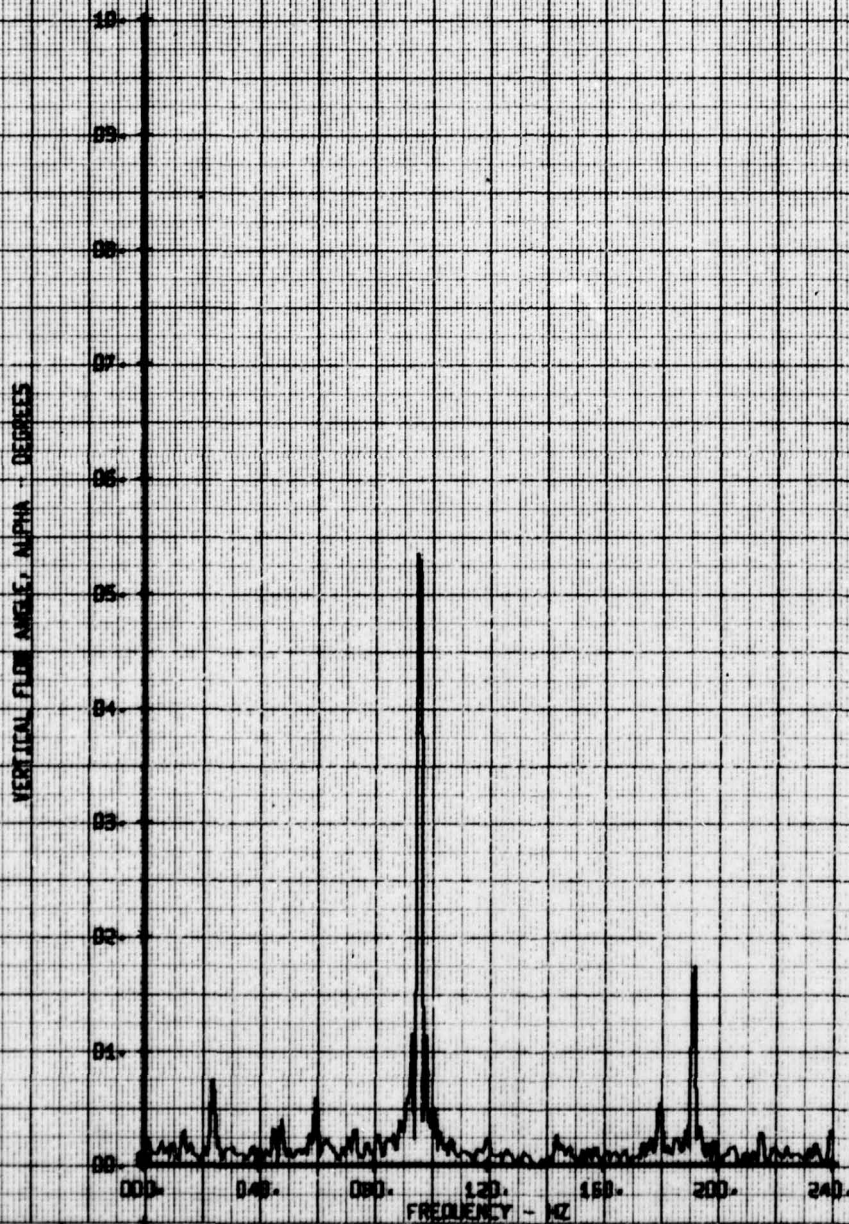
HOT FILM WAVE FREQUENCY ANALYSIS
 BASE CONFIG. TRAVERSE AT 1/8 C-1.
 RUN 111 TP 24

LEGEND
 CM
 SS ALPHA



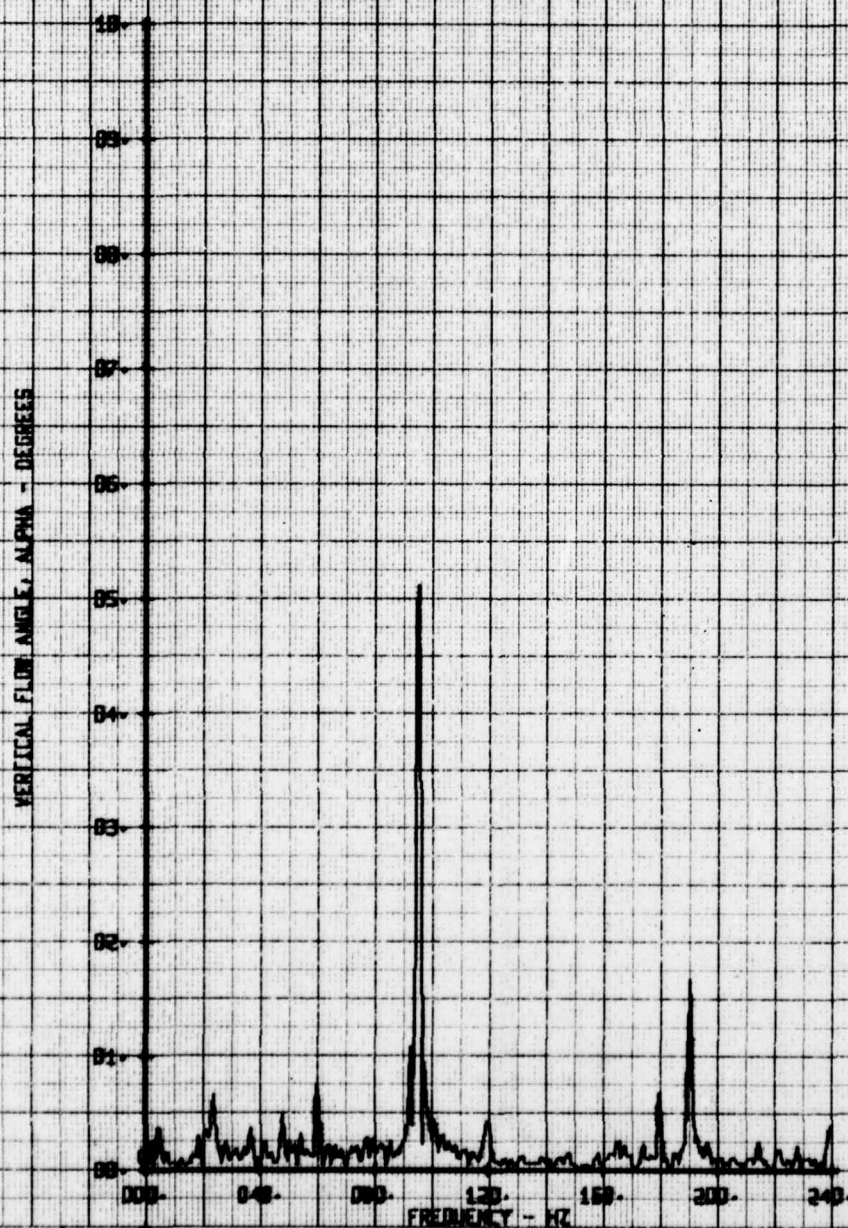
HOT FILM WIRE FREQUENCY ANALYSIS
BASE CORRECTION TRAVERSE AT T/A C-1-
RUN 111 TP 26

LEGEND
CN
55 ALPHA



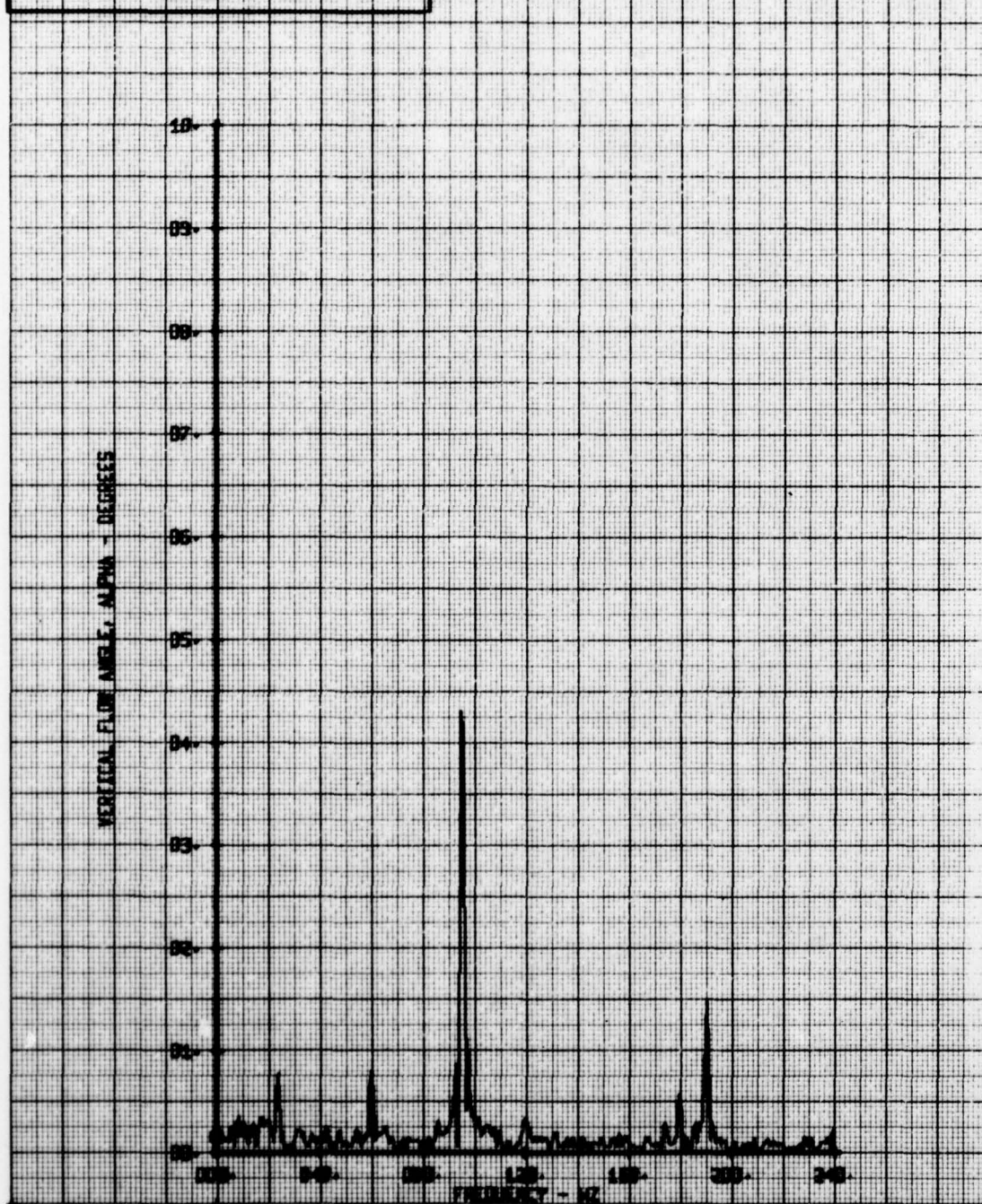
NOI FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE AT 1/8 C.I.
RIM 111 TP 28

LEGEND
CH
85 ALPHA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE AT T/R C-L.
RUN 111 TP 30

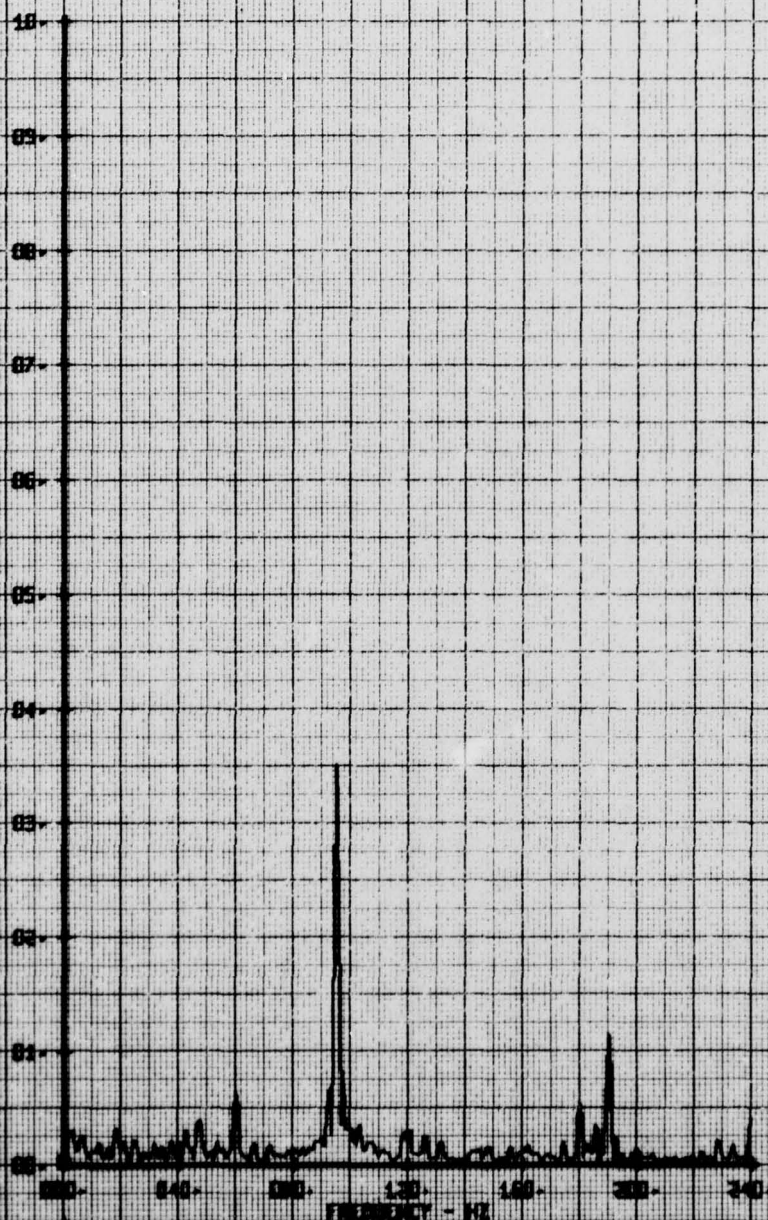
LEGEND
CH
85 ALPHA



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG: TRAVERSE AT 1/8 C.I.
RUN 111 TP 32

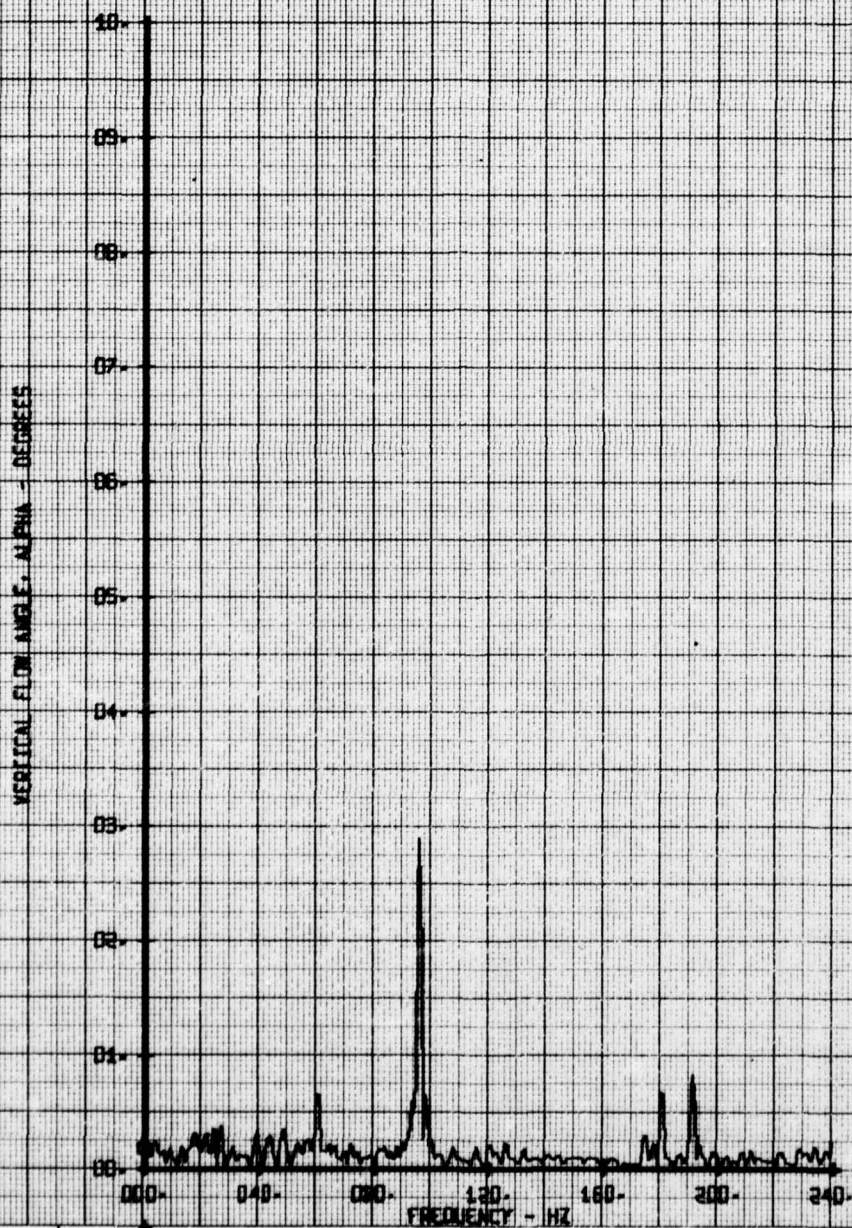
LEGEND
CH 65 ALPHA

VERTICAL FILM ANGLE, ALPHA - DEGREES



NOT FILM WAVE FREQUENCY ANALYSIS
BASE COMET. TRAVERSE AT T/R C.I.
RUN 111 TP 34

LEGEND
CH
65 ALPHA

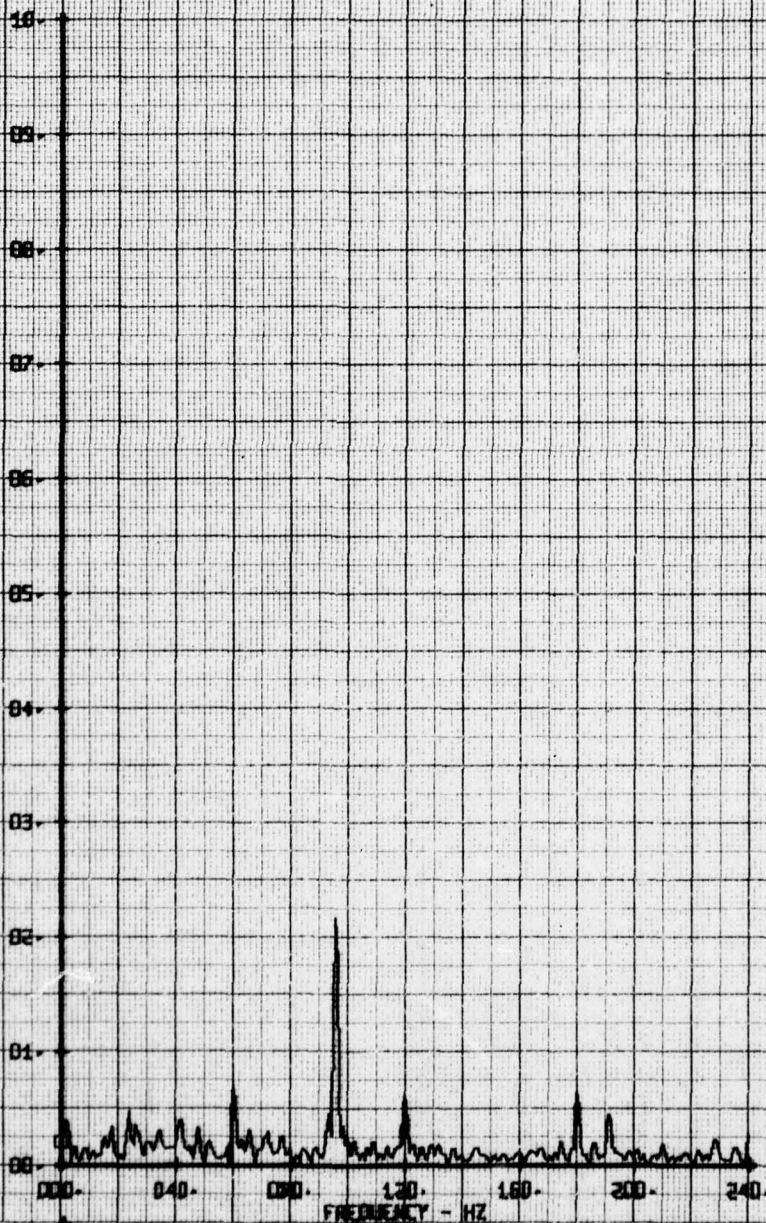


NOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRANSVERSE AT 1/4 C-L.
RUM 111 TP 36

LEGEND

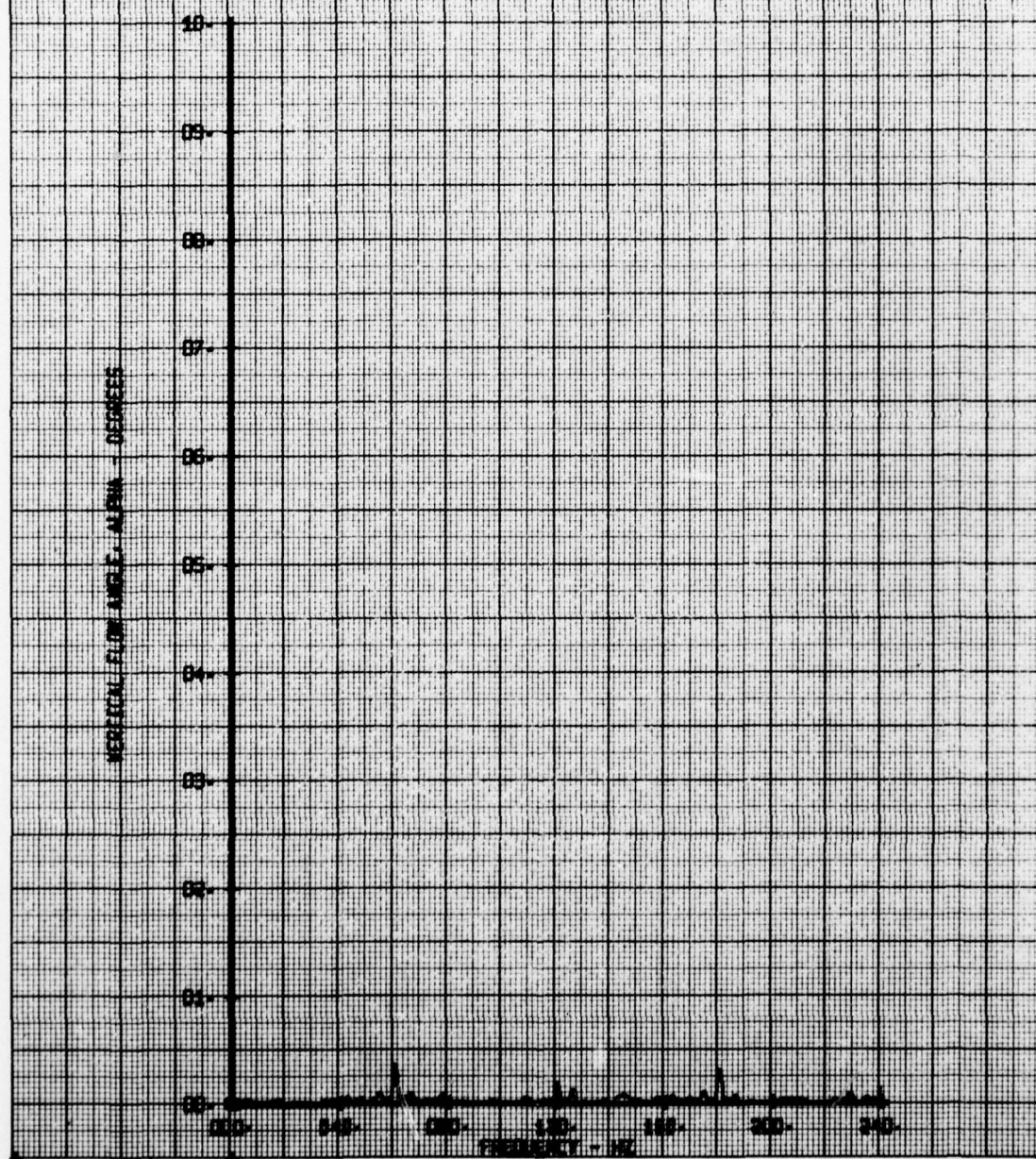
CH
65 ALPHA

VERTICAL FLOW ANGLE, ALPHA - DEGREES



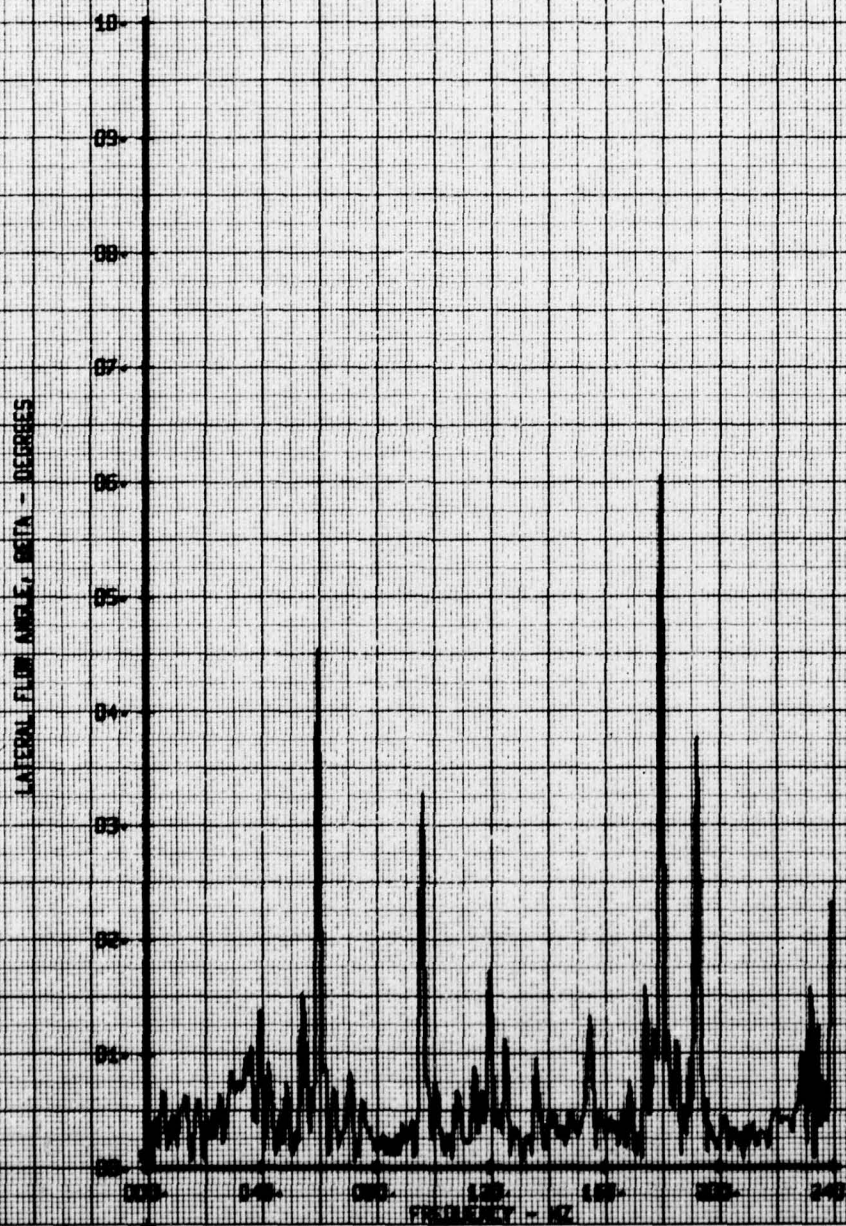
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFG. TRAVERSE AT T/R C.J. -
RUN 111 TP 30

LEGEND
CH
65 ALPHA



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CORRECTION TRAVERSE AT 1/8 C-1.
RUN 111 TP 20

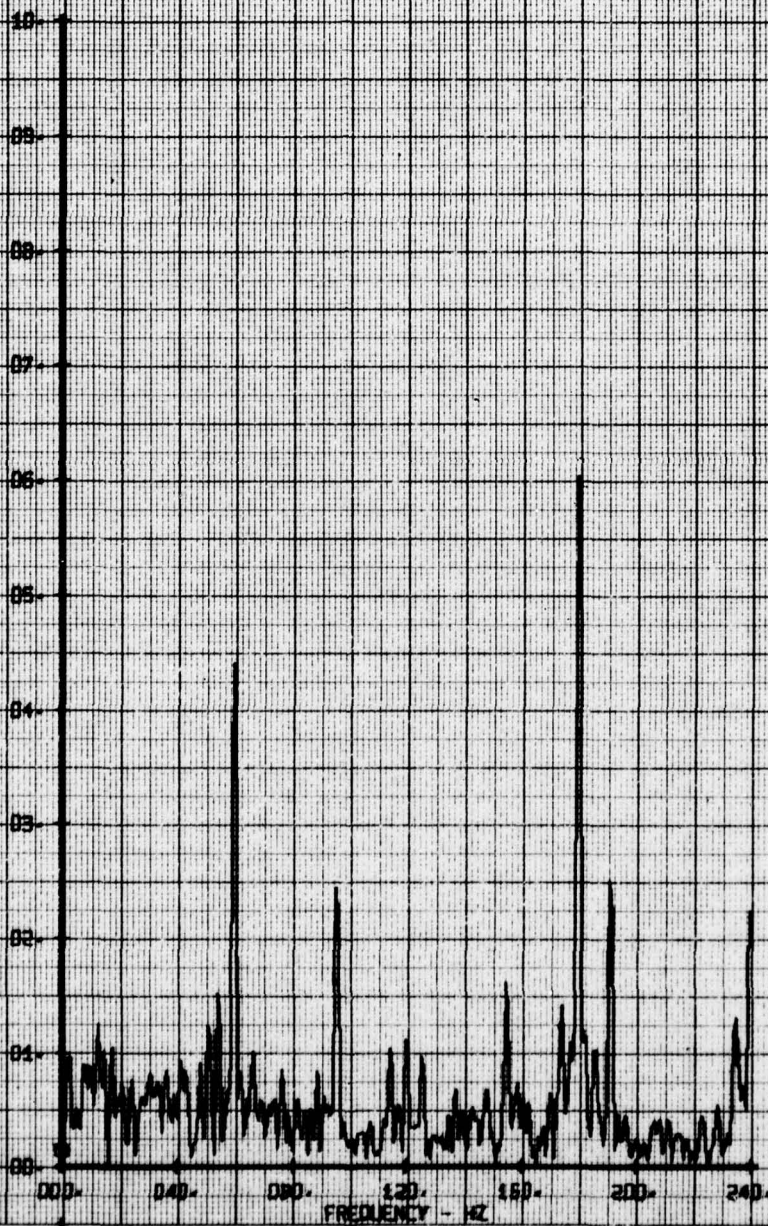
LEGEND
CH
66 BETA



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CORP. TRAVERSE AT T/W C-1.
RUN 111 TP 21

LEGEND
CM
SS BETA

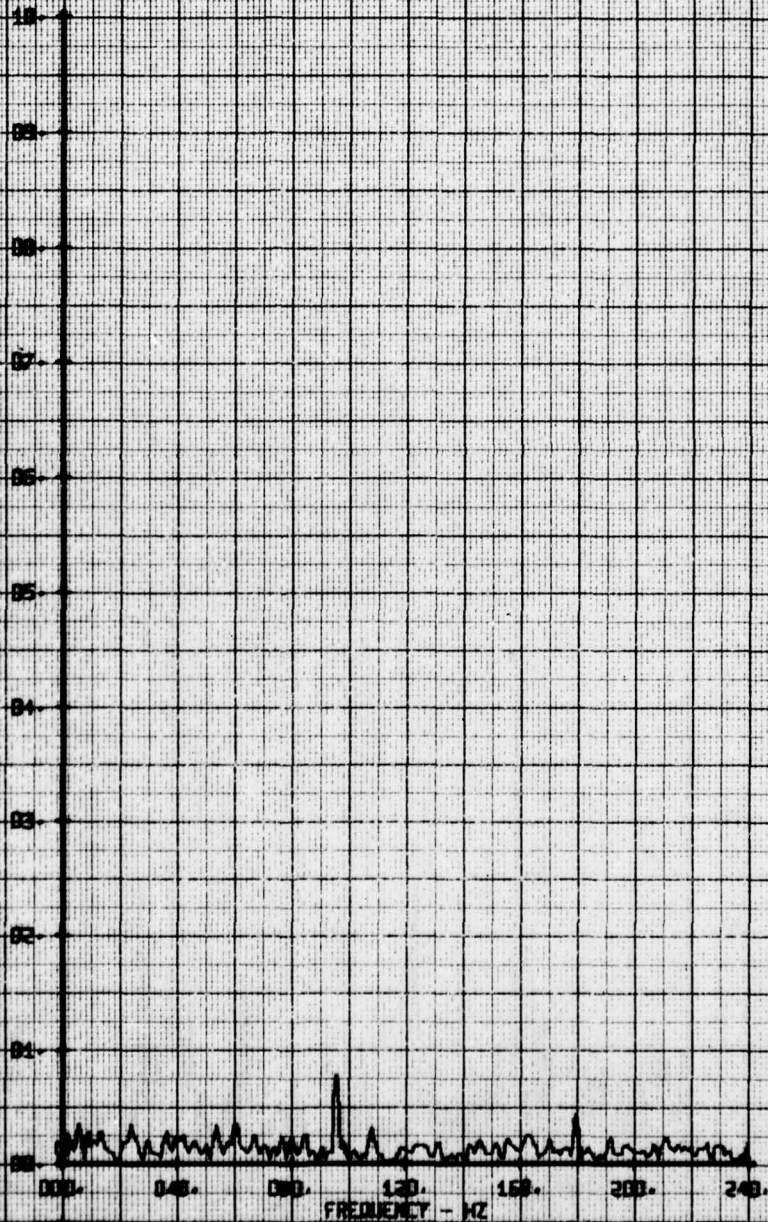
LATERAL FLOW ANGLE, BETA - DEGREES



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CORRECTED TRAVERSE AT T/R C-L
RUN 11A TP 22

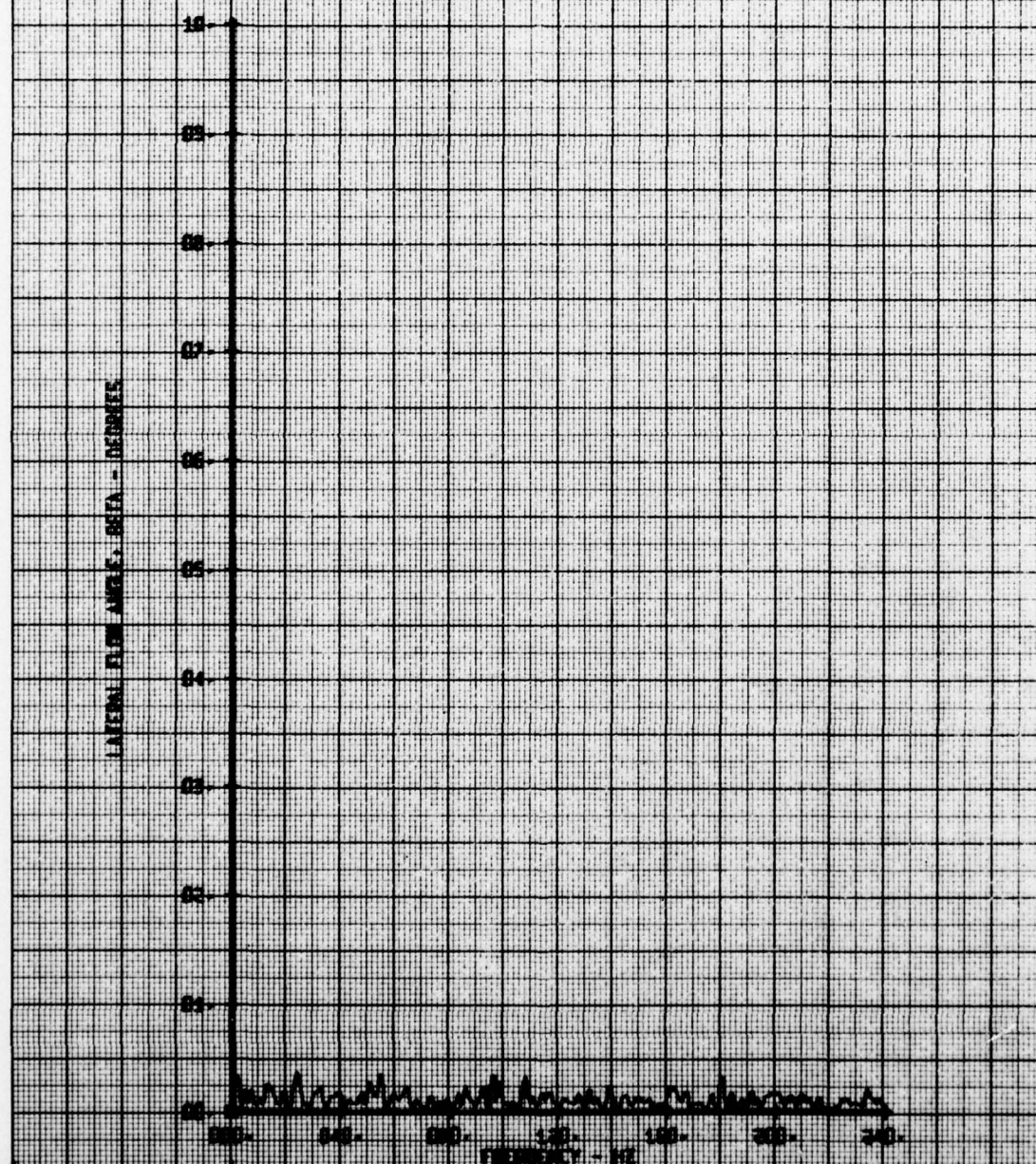
LEGEND
CH
BE BETA

LATERAL FLOW ANGLE, BETA - DEGREES



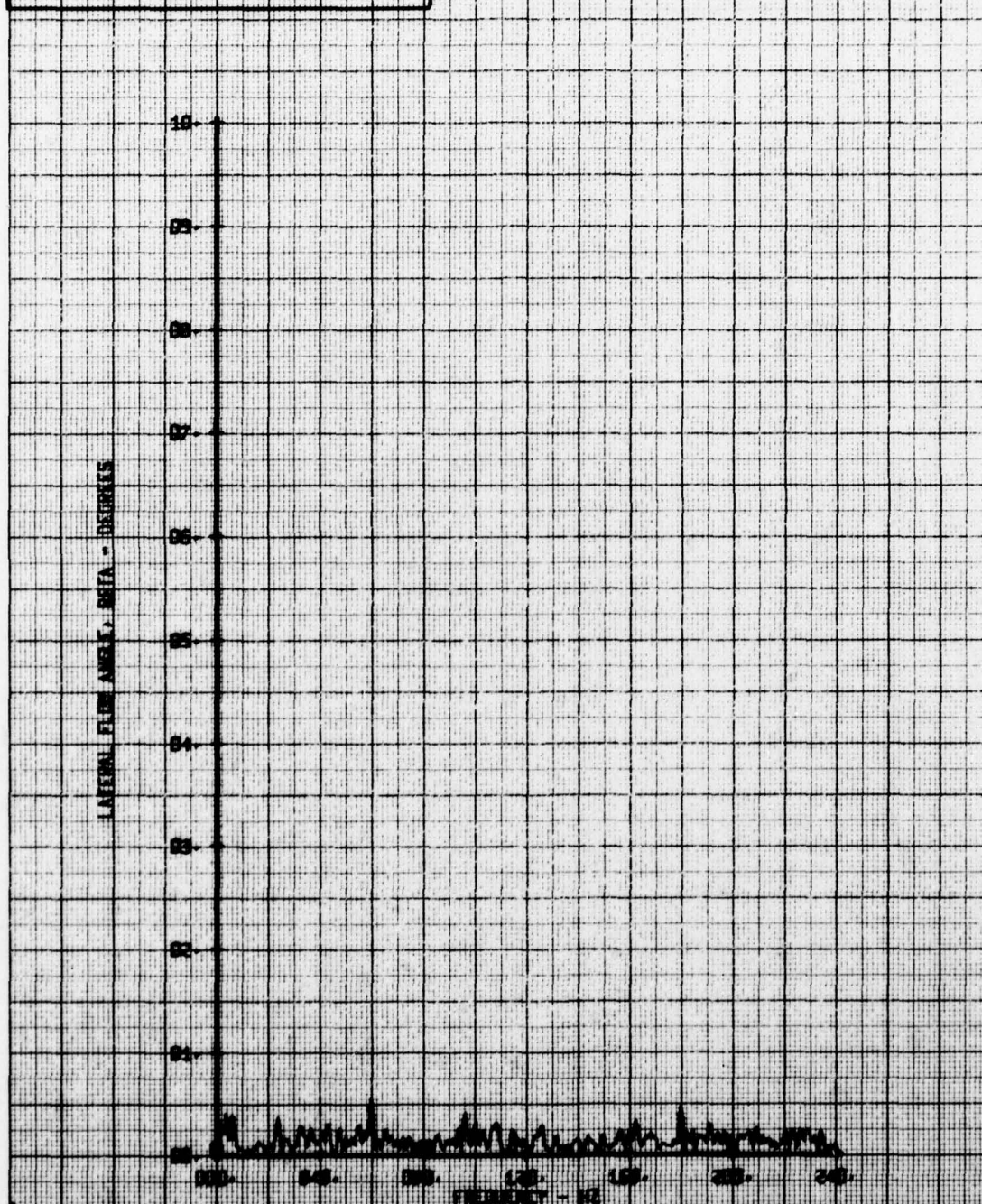
HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONTIN. TRAVERSE AT T/R C-L-
RUN 111 TP 24

LEGEND
CH
66 BETA



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG: TRAVERSE AT T/R C-L-
RUN 111 TP 26

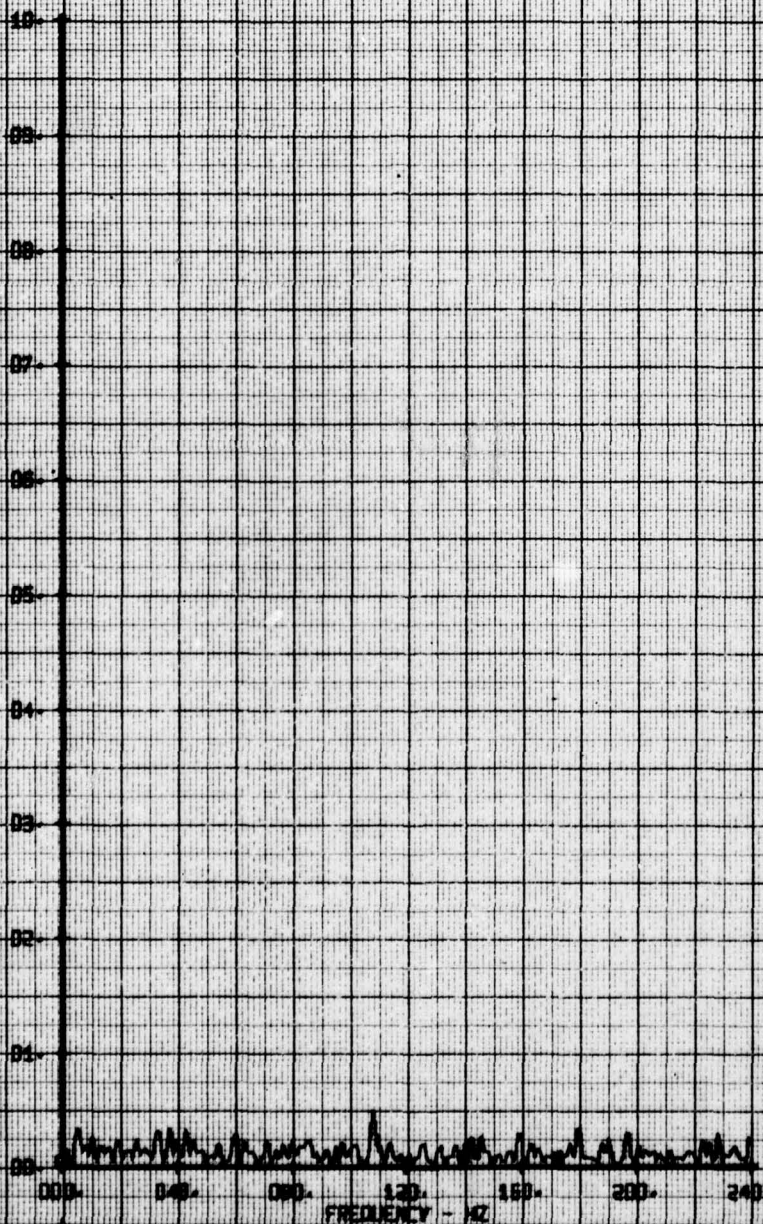
LEGEND
CH 66 BETA



NOT FILM WAVE FREQUENCY ANALYSIS
BASE CORRECTION TRAVERSE AT T/A C-1.
RUN 111 TP 20

LEGEND
CM
55 BETA

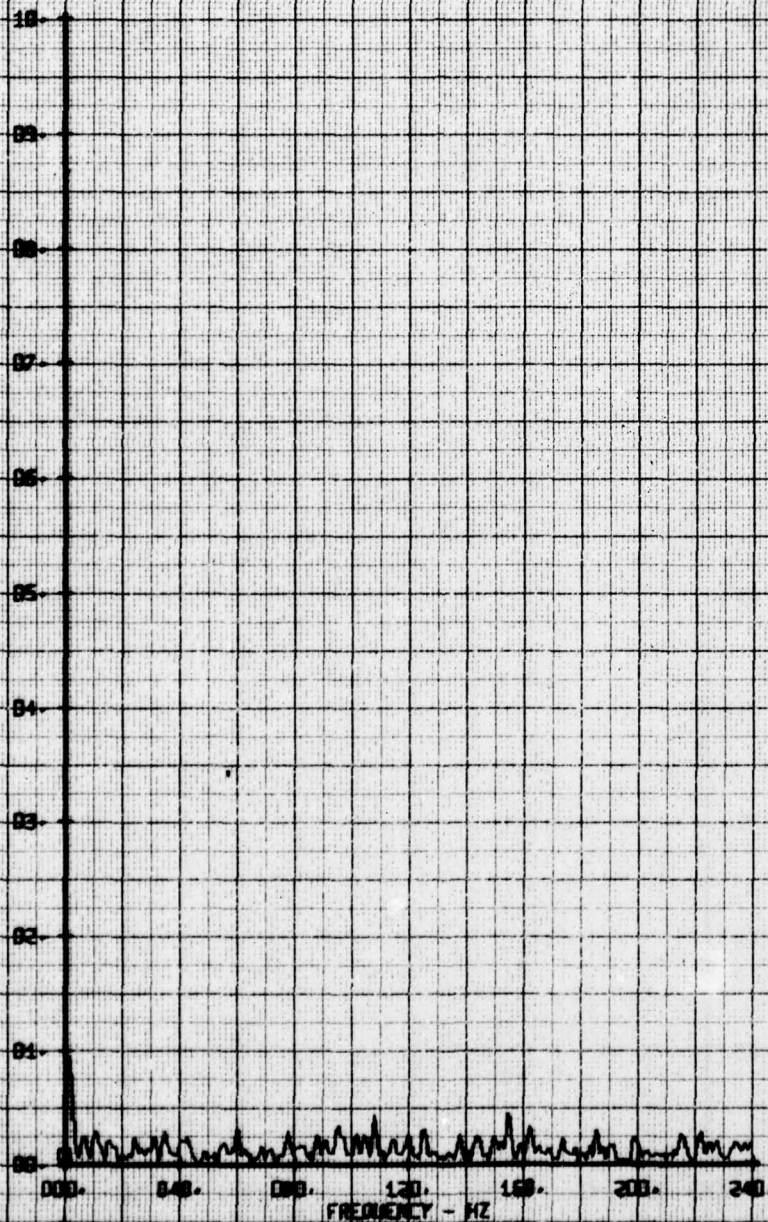
LATERAL FLOW ANGLE, BETA - DEGREES



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE AT 1/8 C-L.
RUN 111 TP 30

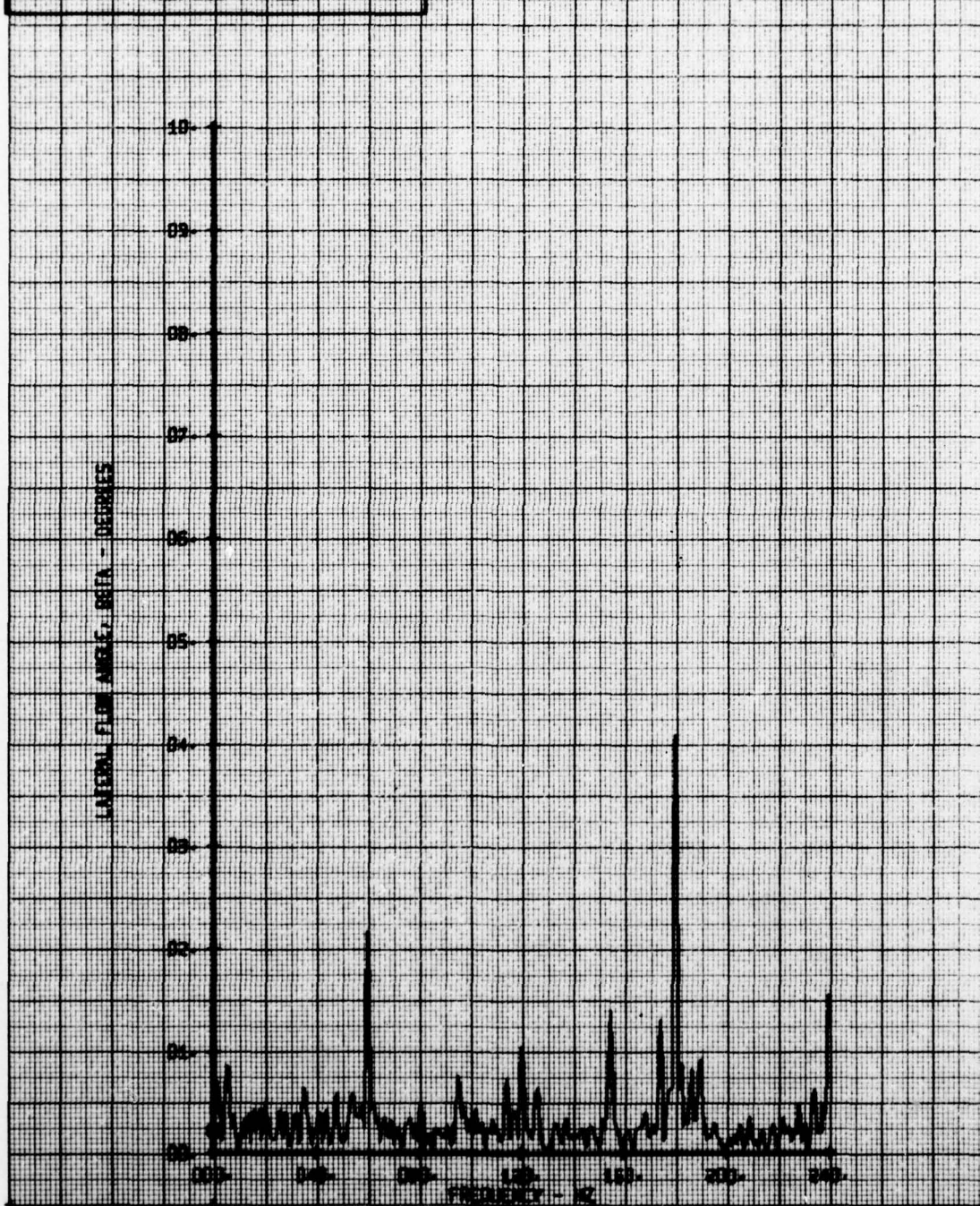
LEGENO
CM
GG BETA

LATERAL FLOW ANGLE, BETA - DEGREES



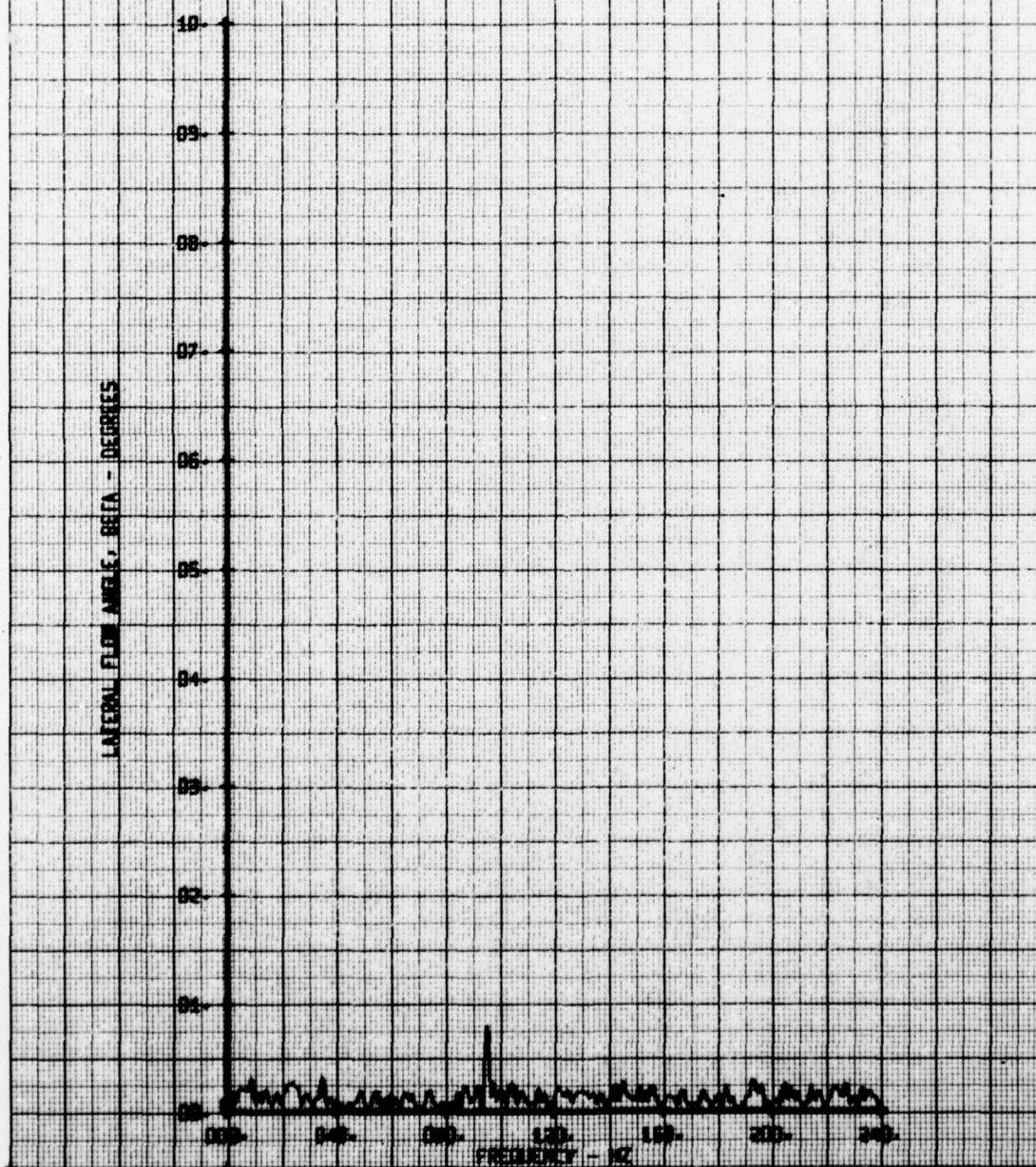
HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFG. TRAVERSE AT T/R C-1.
RUN 111 TP 32

LEGEND
CH
55 BETA



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG- TRAVERSE AT T/R C-L-
RUN 111 TP 34

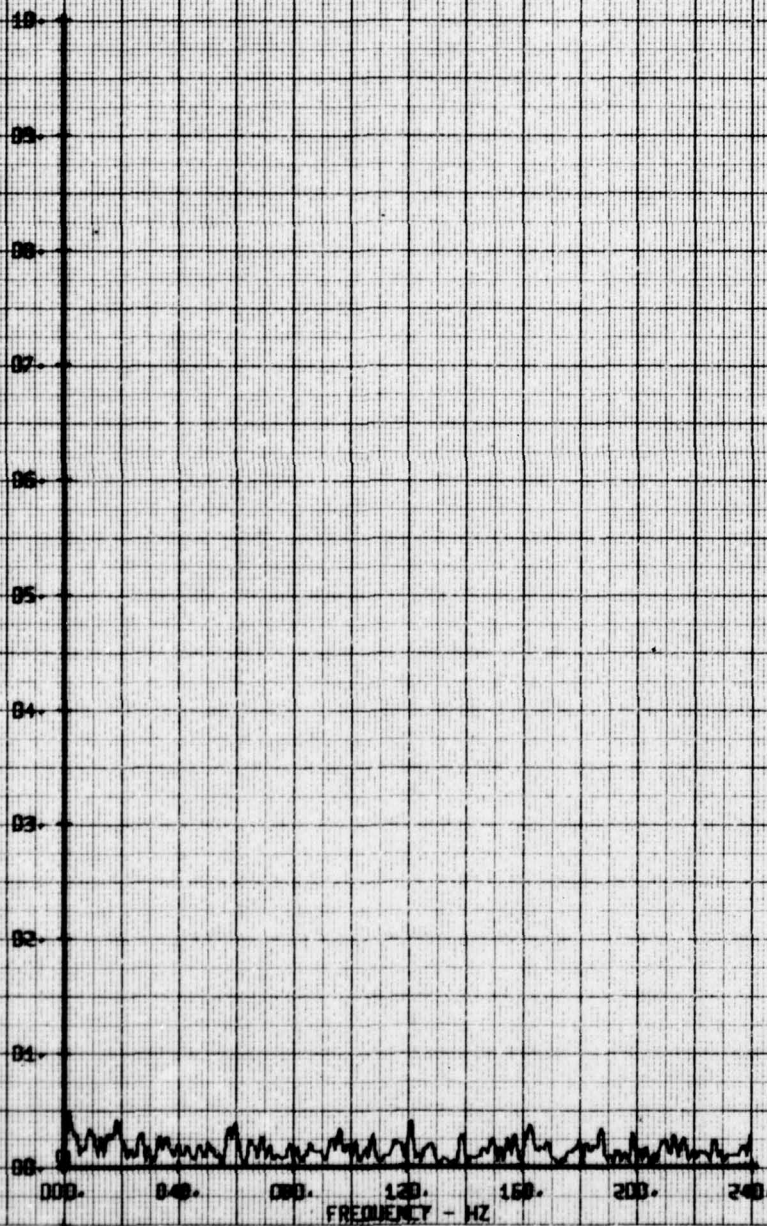
LEGEND
CH 56 BETA



NOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIR. TRAVERSE AT 1/8 C-I.
RAN 111 TP 36

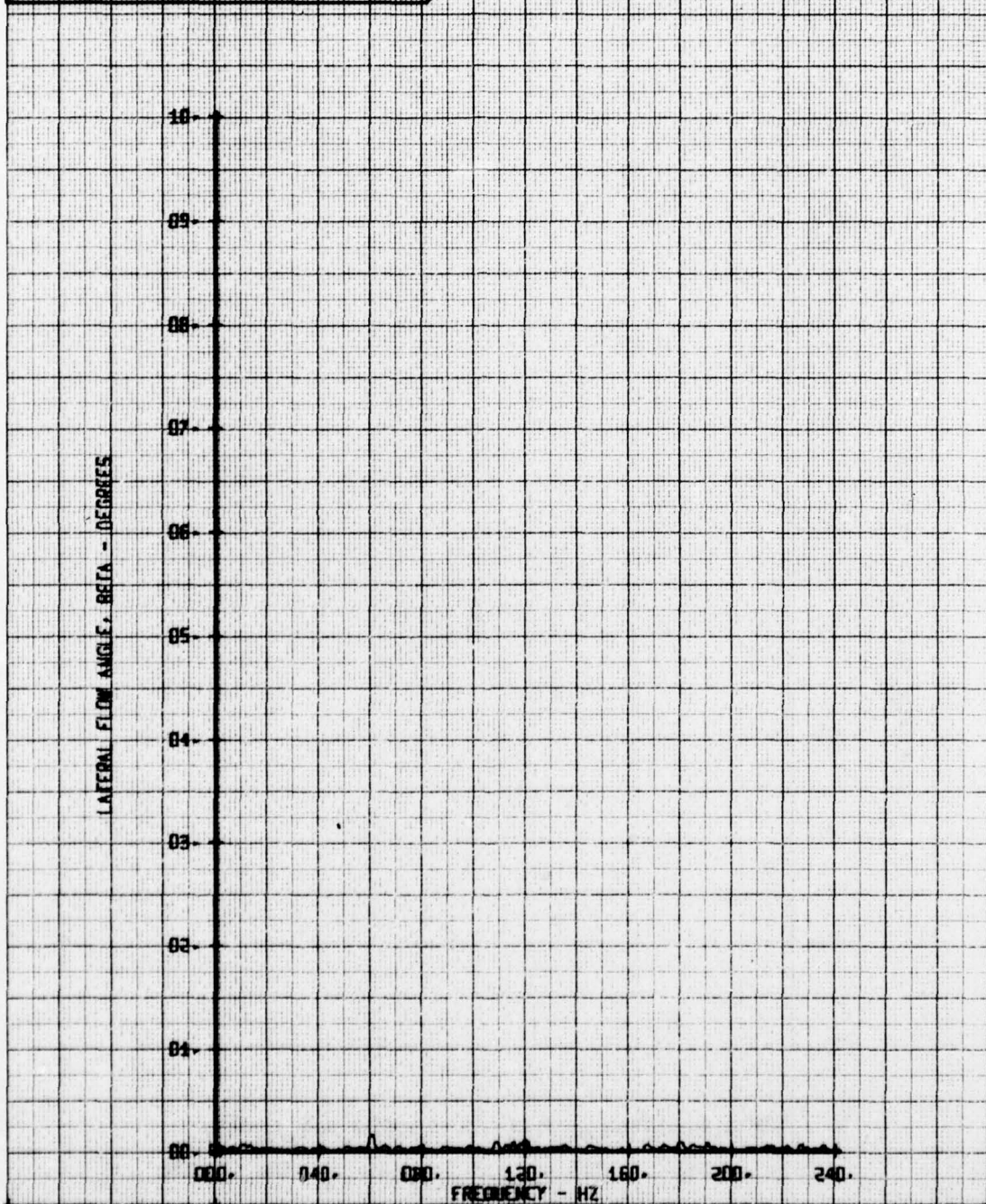
LEGEND
CM
85 BETA

LATERAL FLOW ANGLES, BETA - DEGREES



HOT FILM WIRE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE AT 1/2R C-L.
RUN 111 TP 38

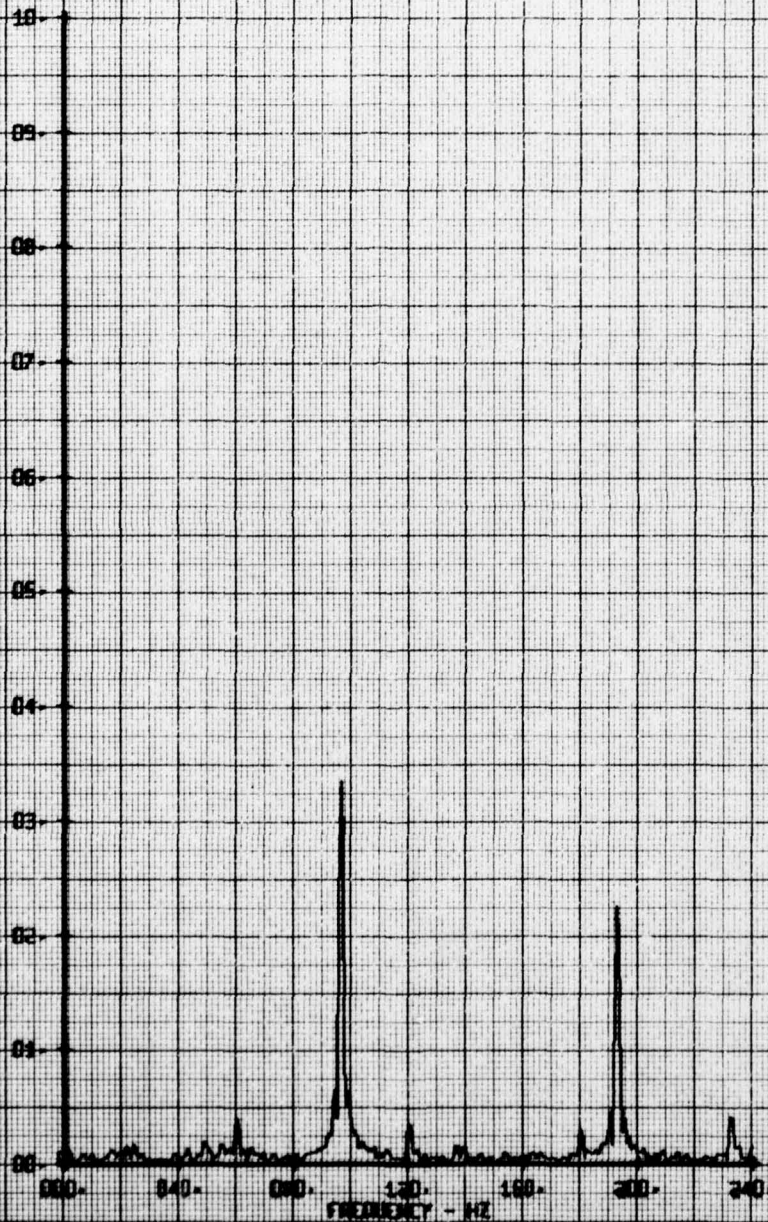
LEGEND
CH
66 BETA



NOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG: TRAVERSE AT T/R C-L.
RUN 111 TP 20

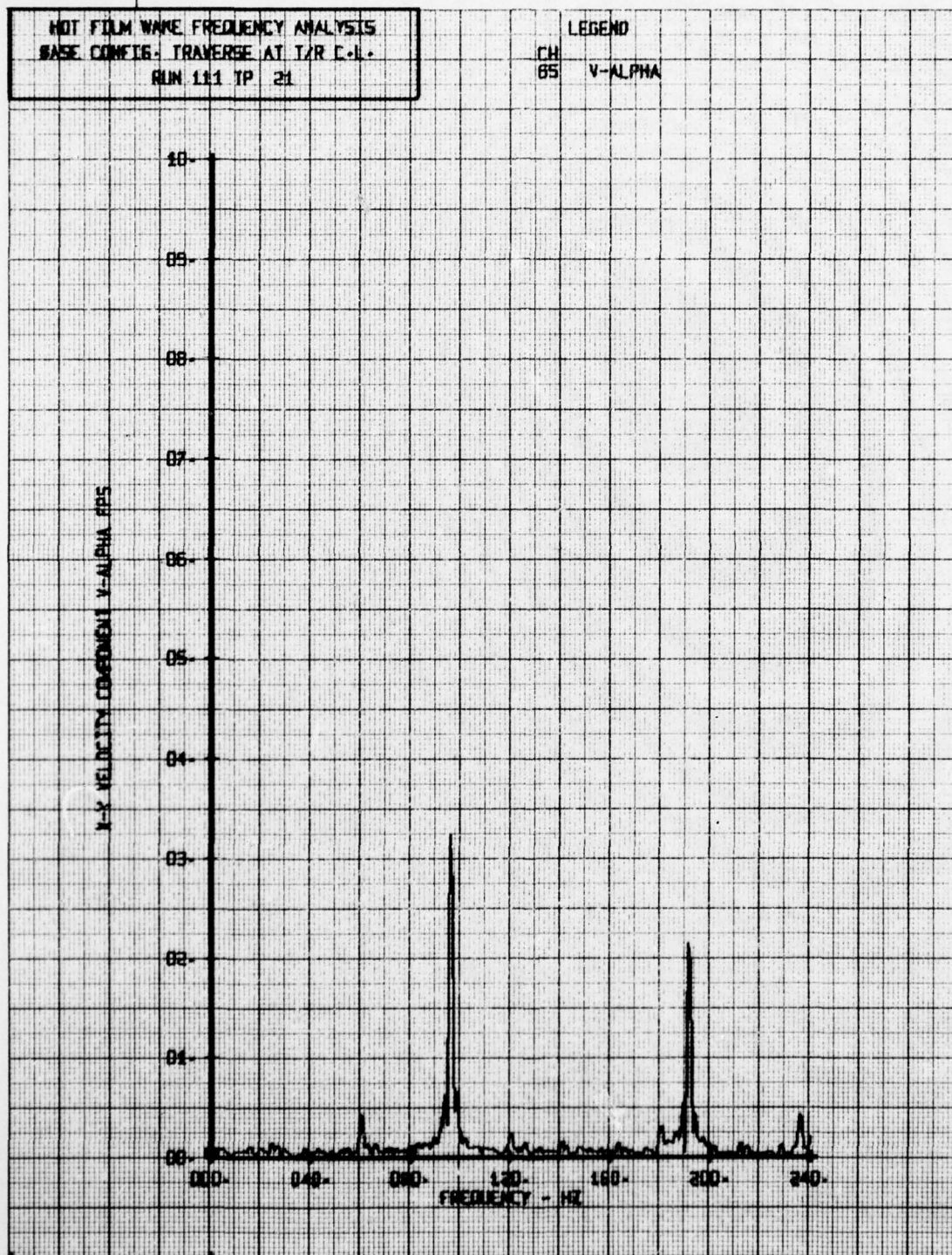
LEGEND
CH
65 V-ALPHA

V-ALPHA COMPONENT V-ALPHA RMS



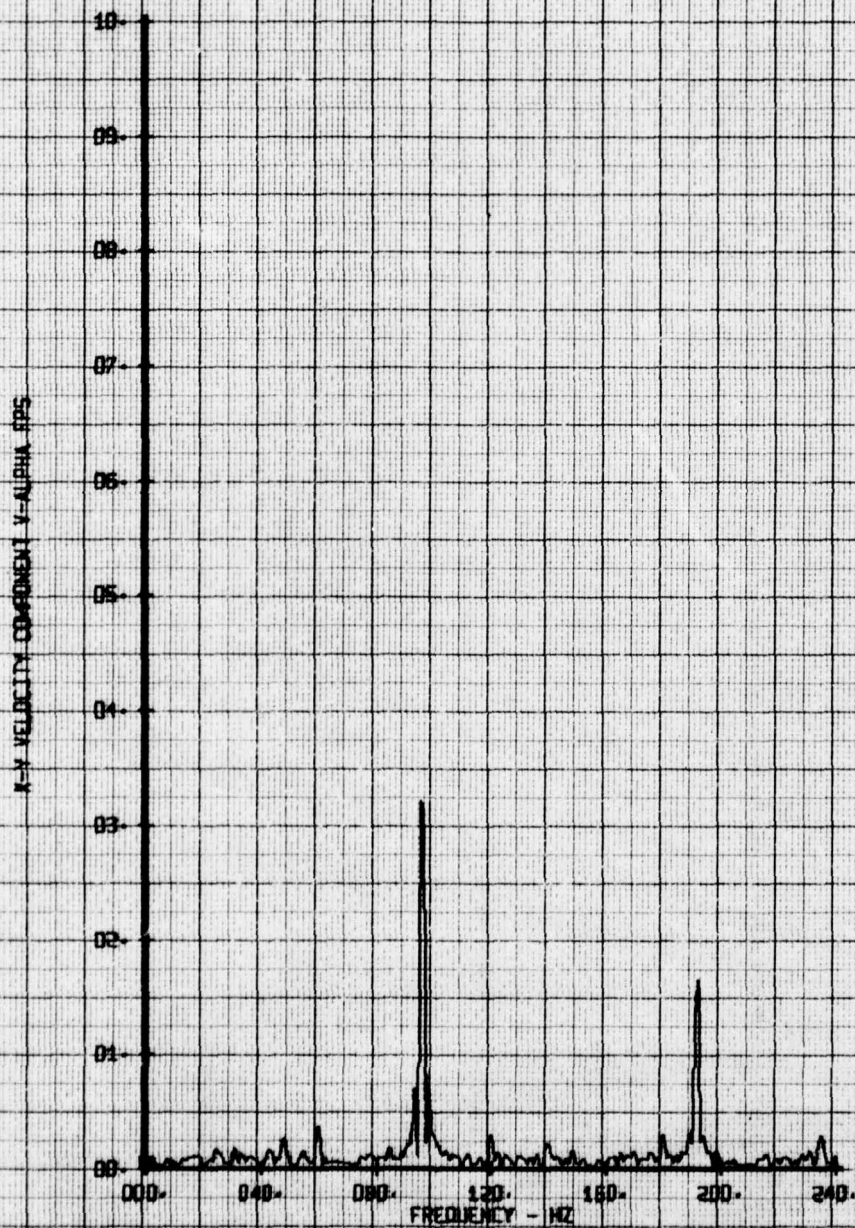
NOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE AT T/R C.L.
RUN 111 TP 21

LEGEND
CH
05 V-ALPHA



HOT FILM WIRE FREQUENCY ANALYSIS
BASE CONFIG: TRAVERSE AT 1/8 C-L.
RUN 111 TP 22

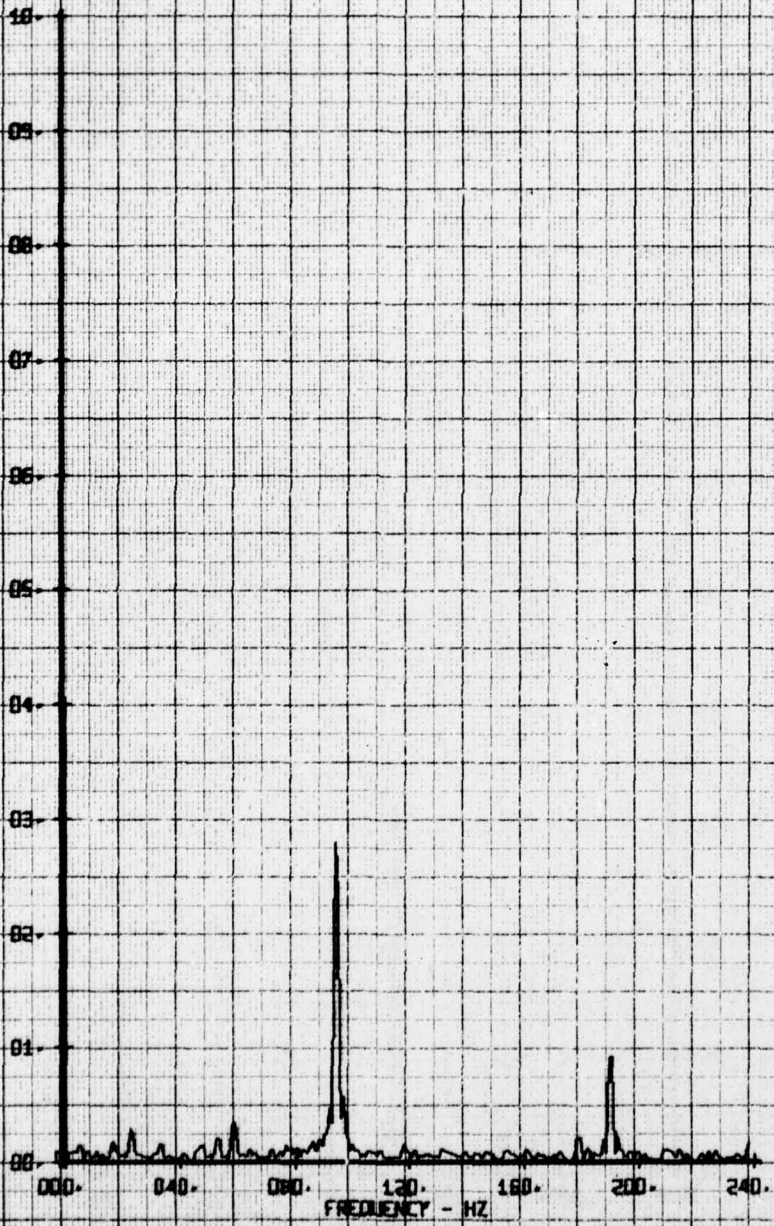
LEGEND
CM
65 V-ALPHA



HOT FILM WAKE FREQUENCY ANALYSIS
 BASE CONFIG. TRAVERSE AT 1/4R C.L.
 RUN 111 TP 24

LEGEND
 CH 65 V-ALPHA

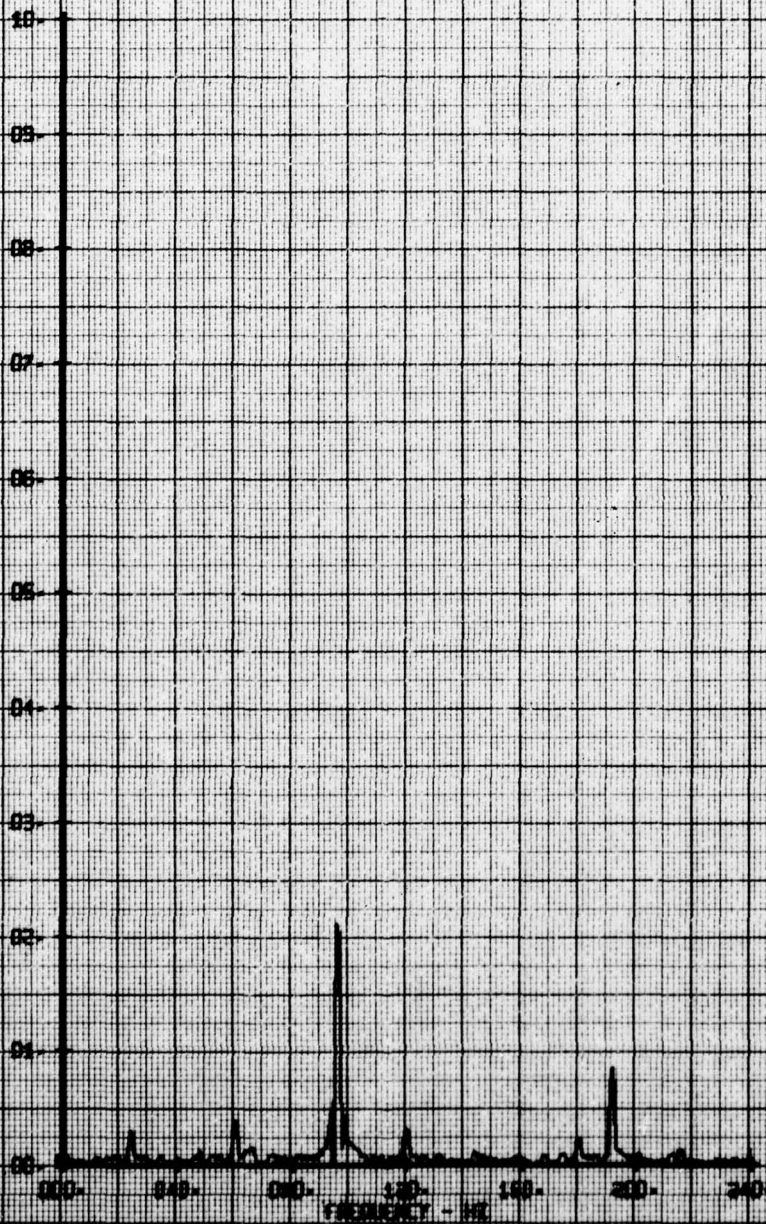
X-Y VELOCITY COMPONENT V-ALPHA RMS



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIR. TRAVERSE AT T/R C.L.
RUN 111 TP 26

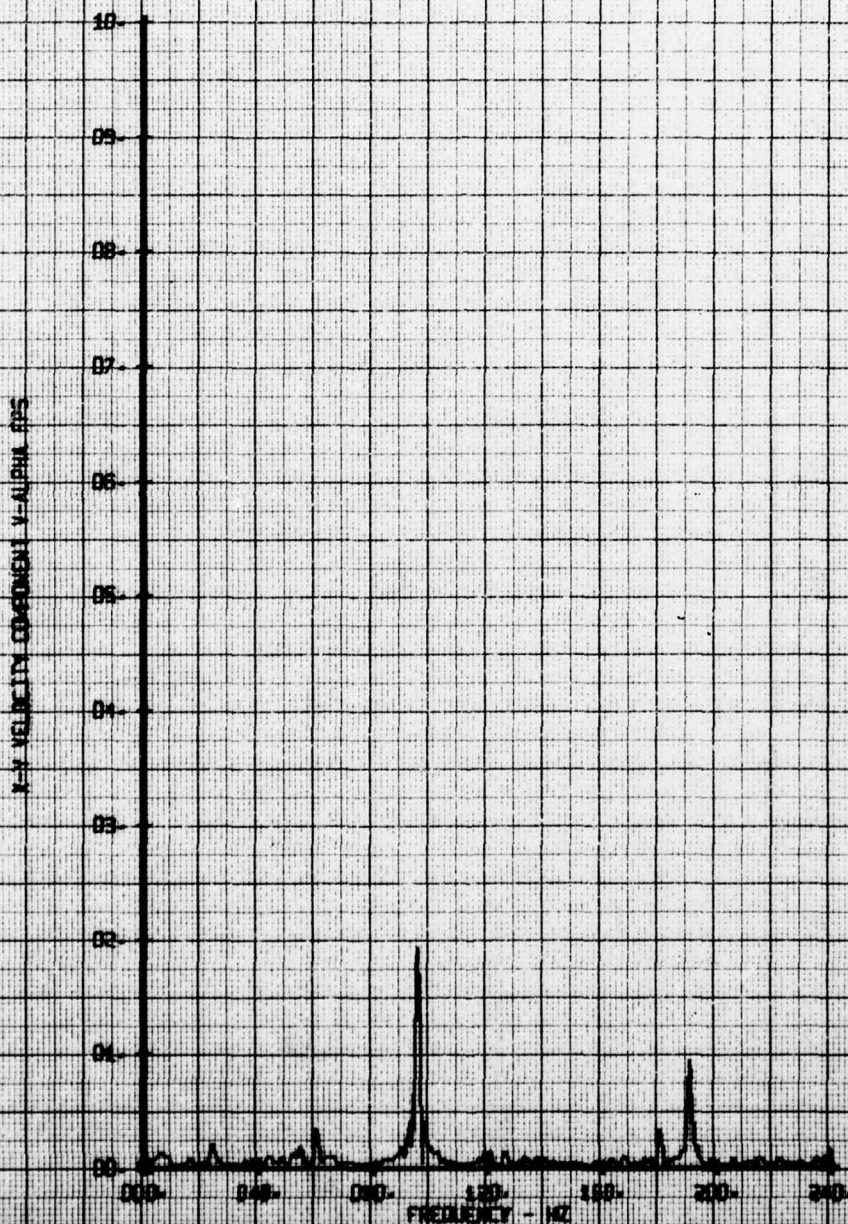
LEGEND
CH
65 V-ALPHA

R-M VELOCITY COMPONENT V-ALPHA RMS



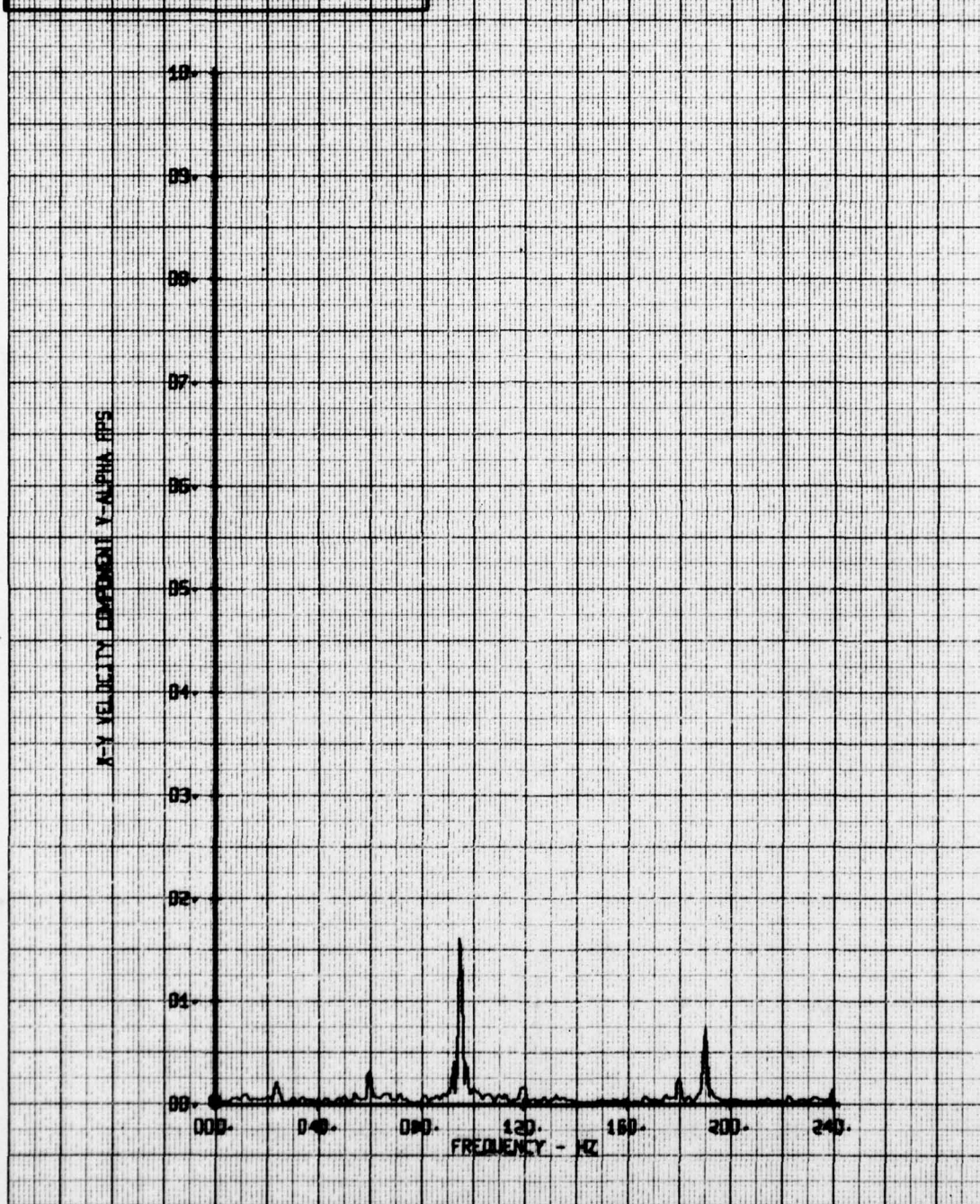
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG: TRAVERSE AT T/R C-L-
RUN 111 TP 28

LEGEND
CH 65 V-ALPHA



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CORRECTION TRAVERSE AT 1/8 C.A.
RUN 111 TP 36

LEGEND
CH
BS Y-ALPHA



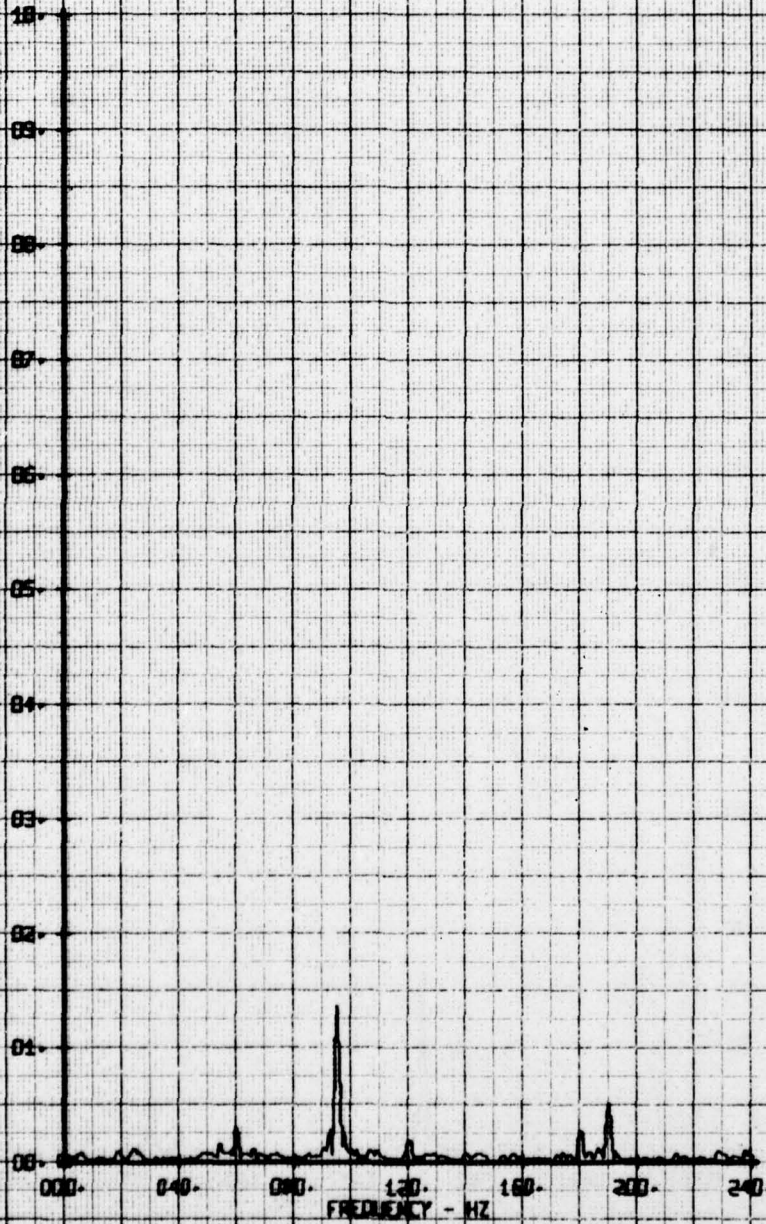
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONTS. TRAVERSE AT 1/8 C.I.

RUN 111 TP 32

LEGEND

CH
65 V-ALPHA

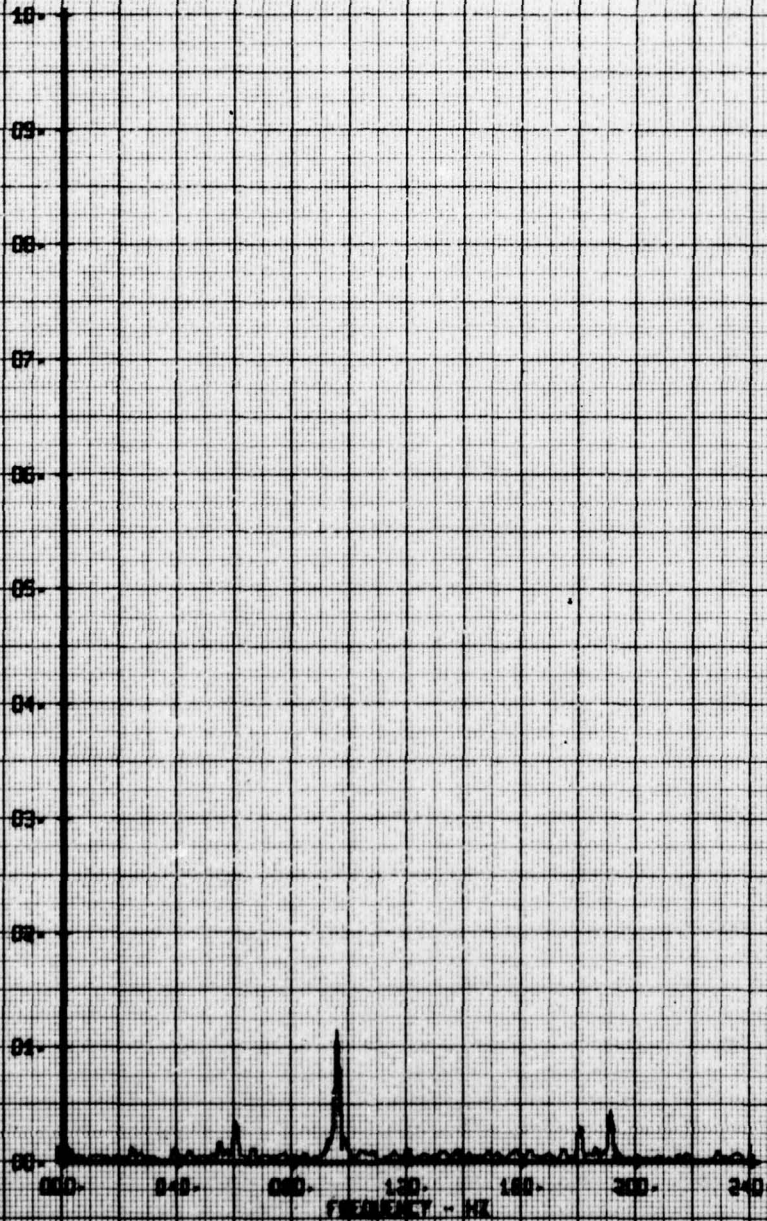
X-V VELOCITY COMPONENT V-ALPHA RMS



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONE T6. TRAVERSE AT 1/8 C.L.
RUN 111 TP 34

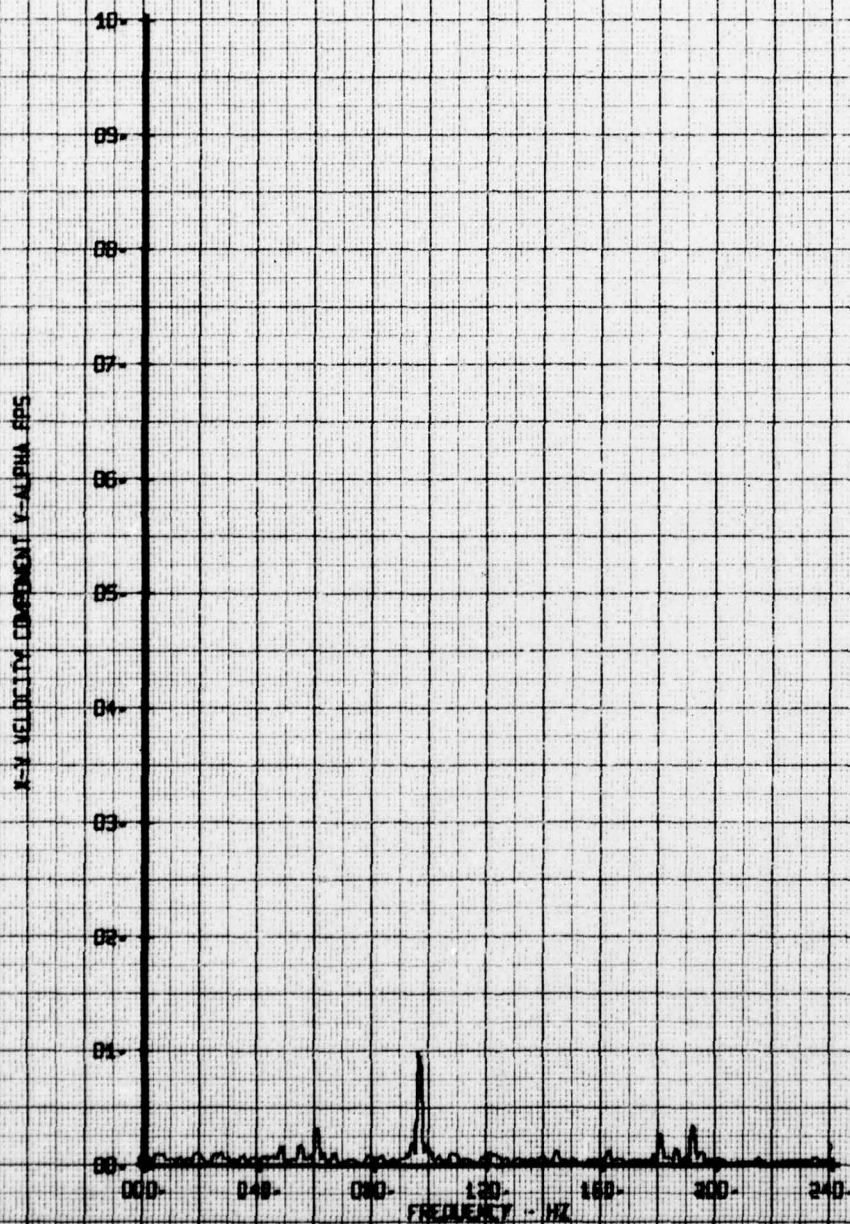
LEGEND
CH
65 V-ALPHA

V-ALPHA COMPONENT V-ALPHA RMS



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE AT T/R C.I.
RUN 111 TP 36

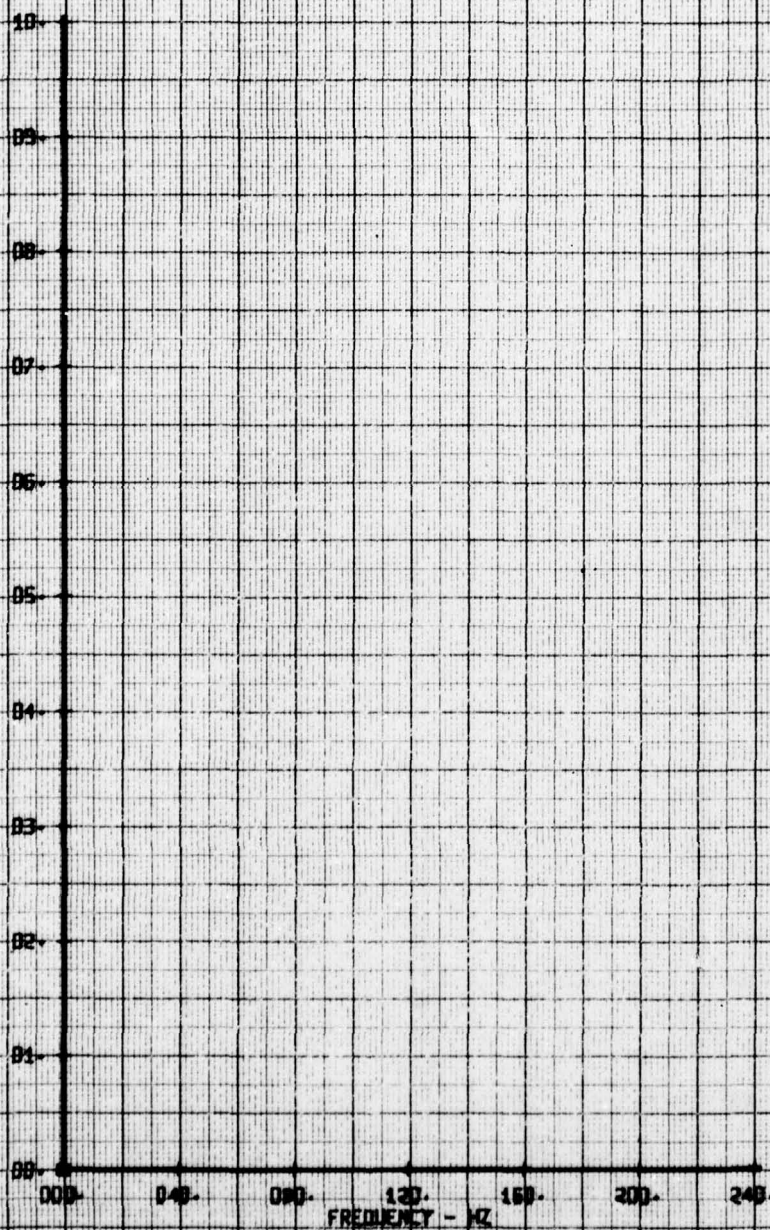
LEGEND
CH
65 V-ALPHA



HOT FILM WAKE FREQUENCY ANALYSIS
WAKE CONFIG- TRAVERSE AT T/N C-1-
RUN 111 TP 30

LEGEND
CM
55 V-ALPHA

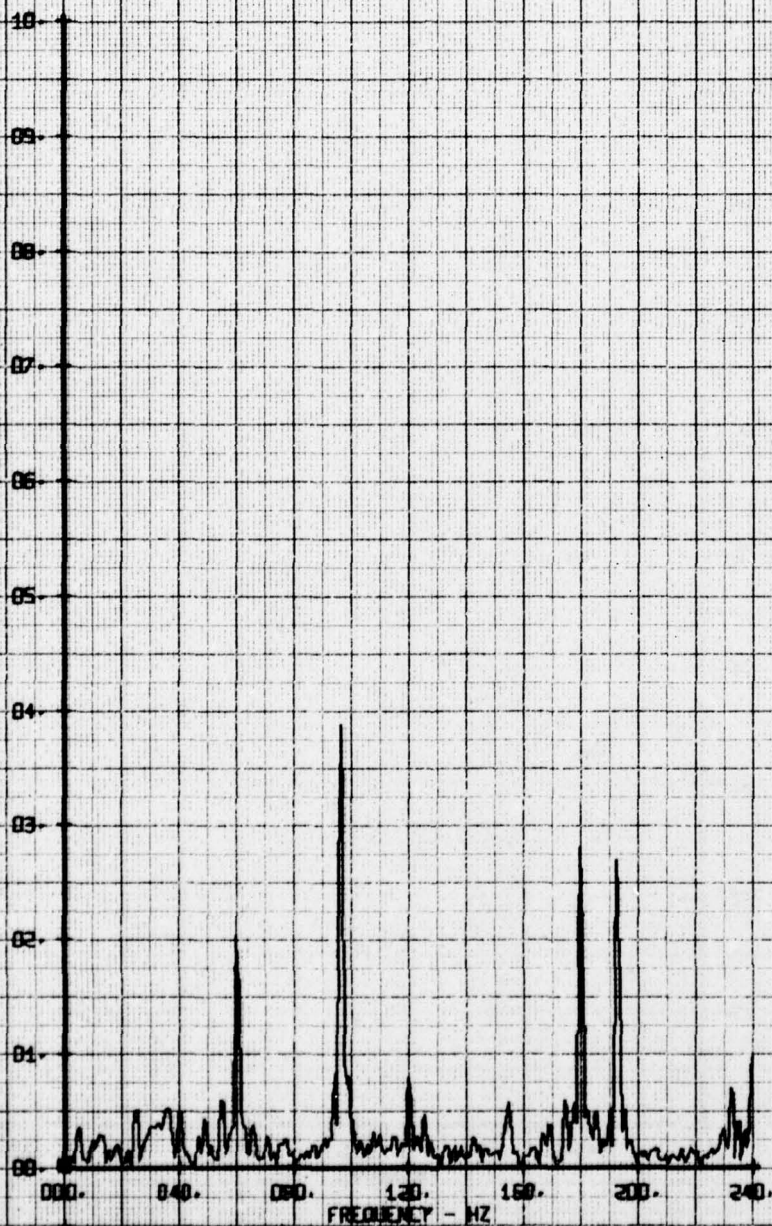
X-Y VELOCITY COMPONENT V-ALPHA FPS



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE AT T/R C-L-
RUN 111 TP 20

LEGEND
CH
66 V-BETA

K-2 VELOCITY COMPONENT V-BETA FMS

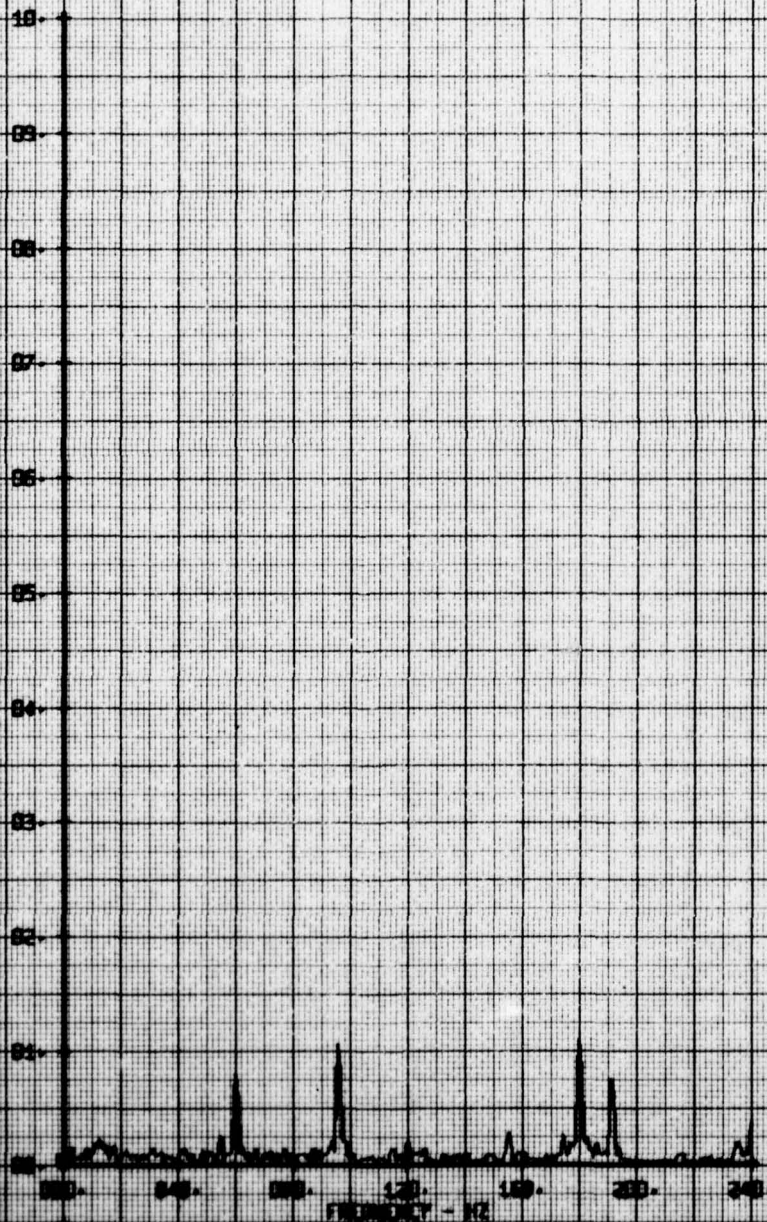


HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE AT T/R C-L.
RUN 111 TP 21

LEGEND

CH
66 V-BETA

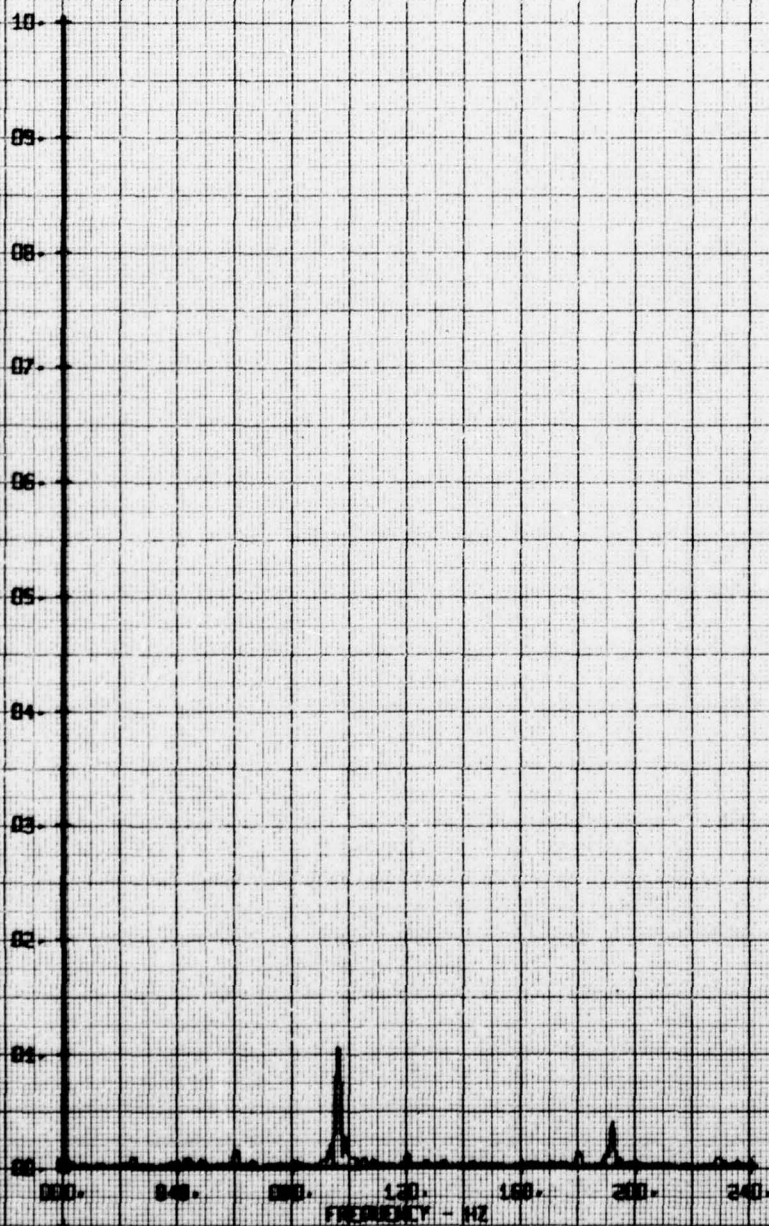
X-2 VELOCITY COMPONENT V-BETA EPS



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG: TRAVERSE AT T/R C-L.
RUN 111 TP 22

LEGEND
CH 66 V-BETA

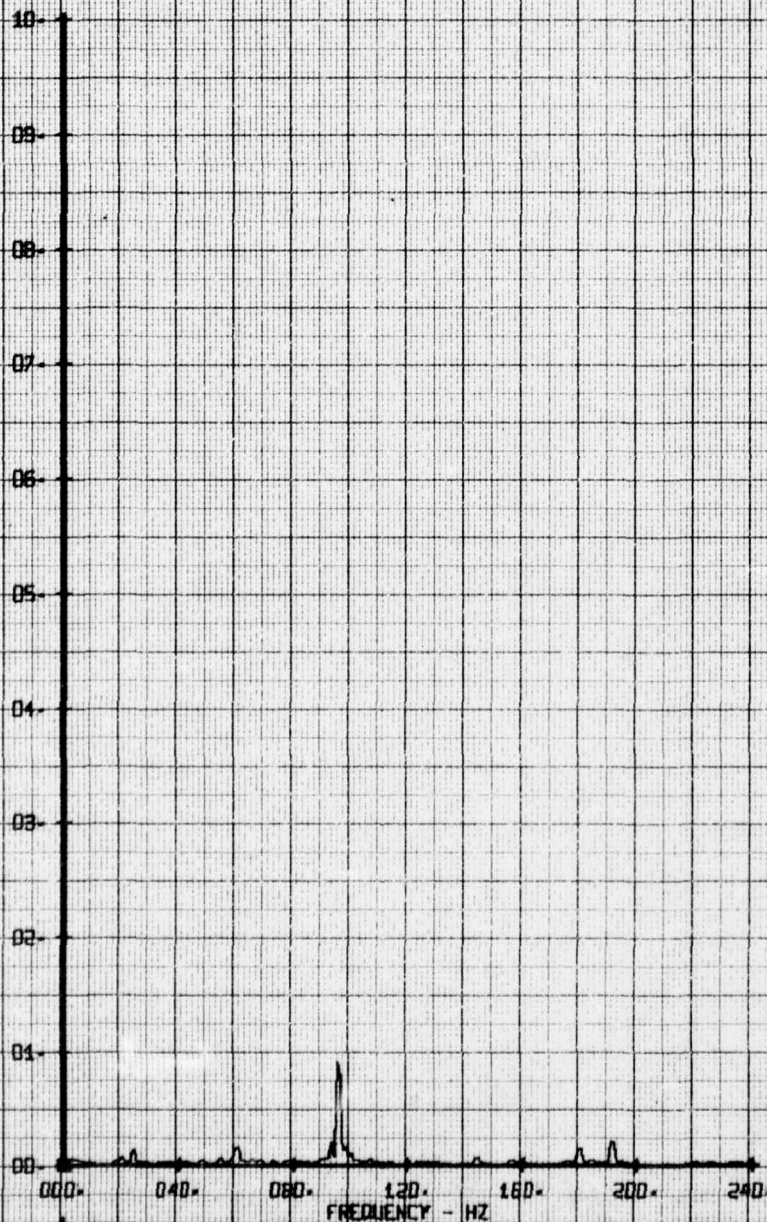
X-2 VELOCITY COMPONENT V-BETA FPS



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE AT T/R C-1.
RUN 111 TP 24

LEGEND
CH
66 V-BETA

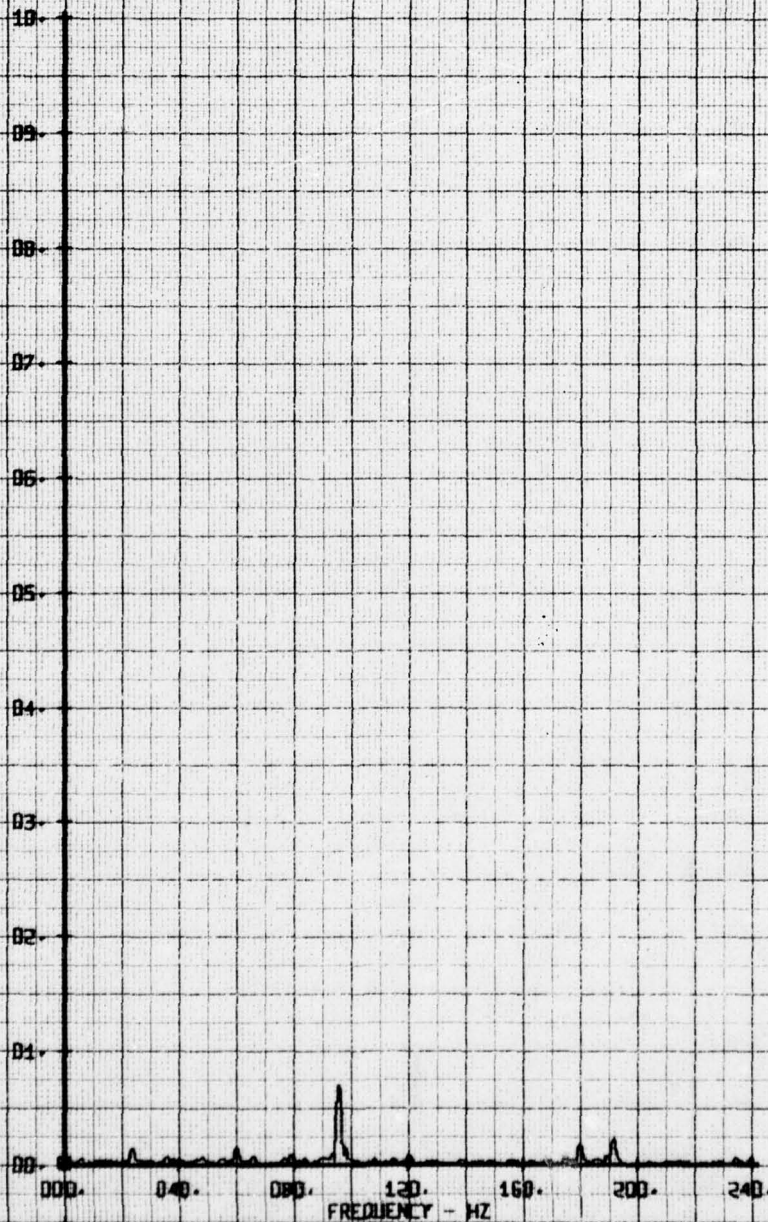
K-2 VELOCITY COMPONENT V-BETA EPS



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE AT 1/4 C.d.
RUN 111 TP 26

LEGEND
FM
55 V-BETA

A-Z VELOCITY COMPONENT V-BETA FRS

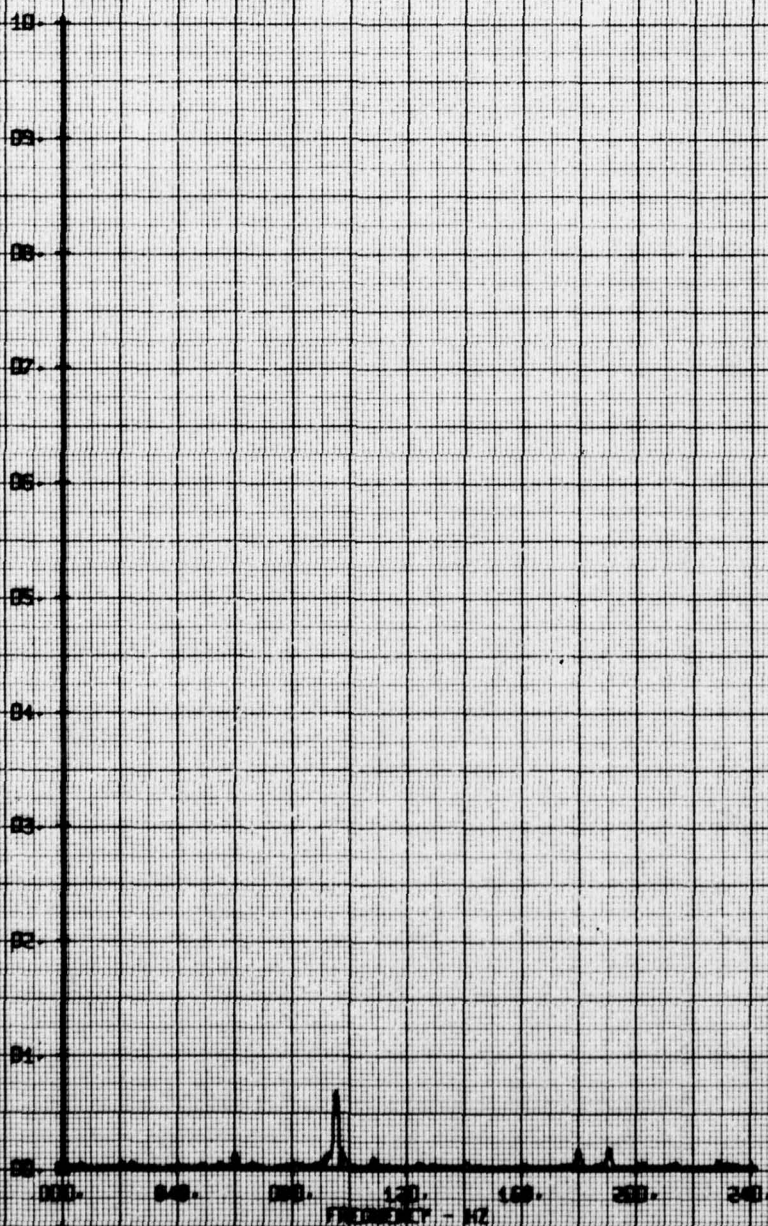


HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE AT T/R C-L-
RUN 111 TP 28

LEGEND

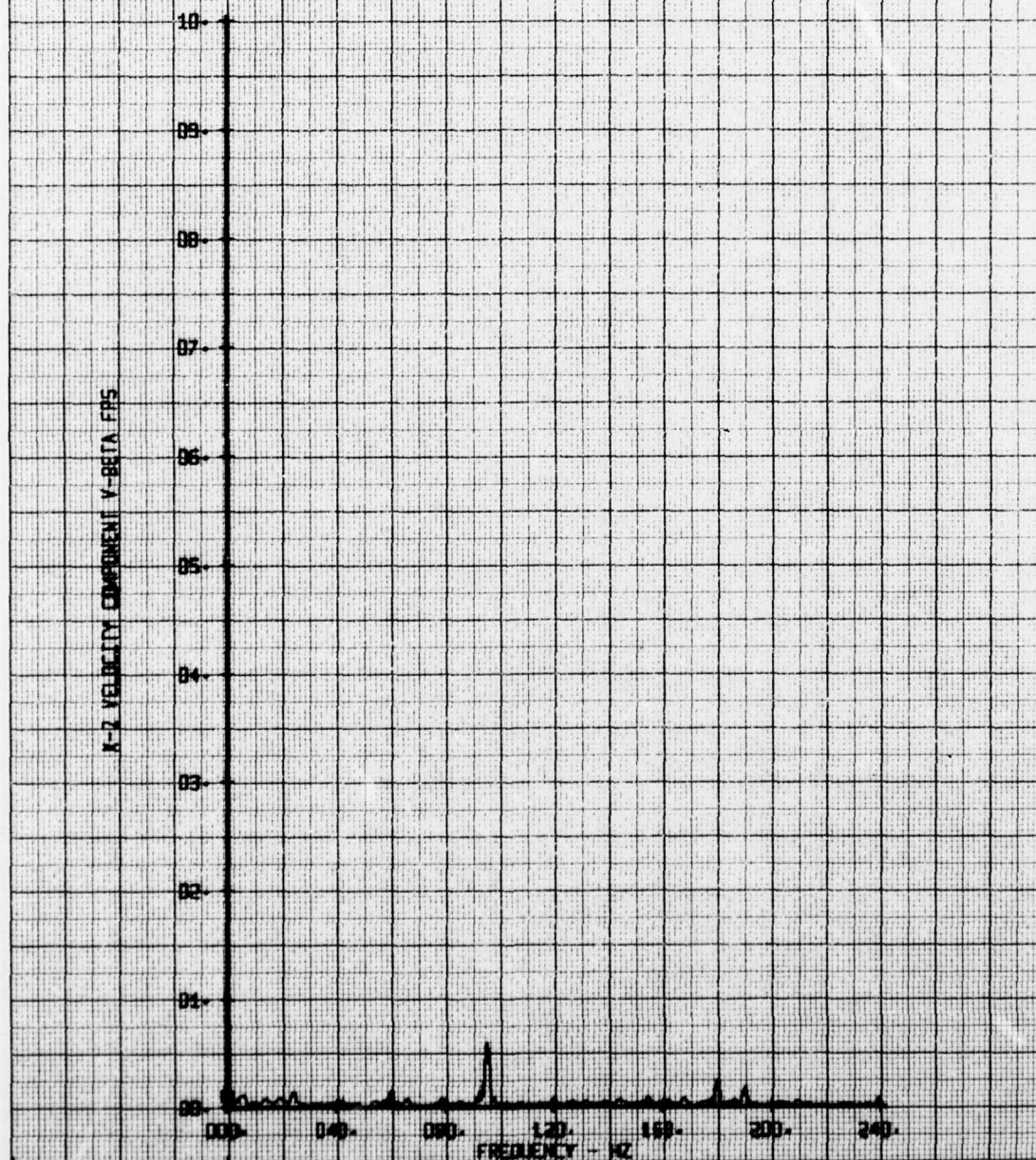
CH 66 V-BETA

A-2 VIBRATION COMPONENT V-BETA FPS



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG- TRAVERSE AT T/R C-L-
RUN 111 TP 30

LEGEND
CH 56 V-BETA

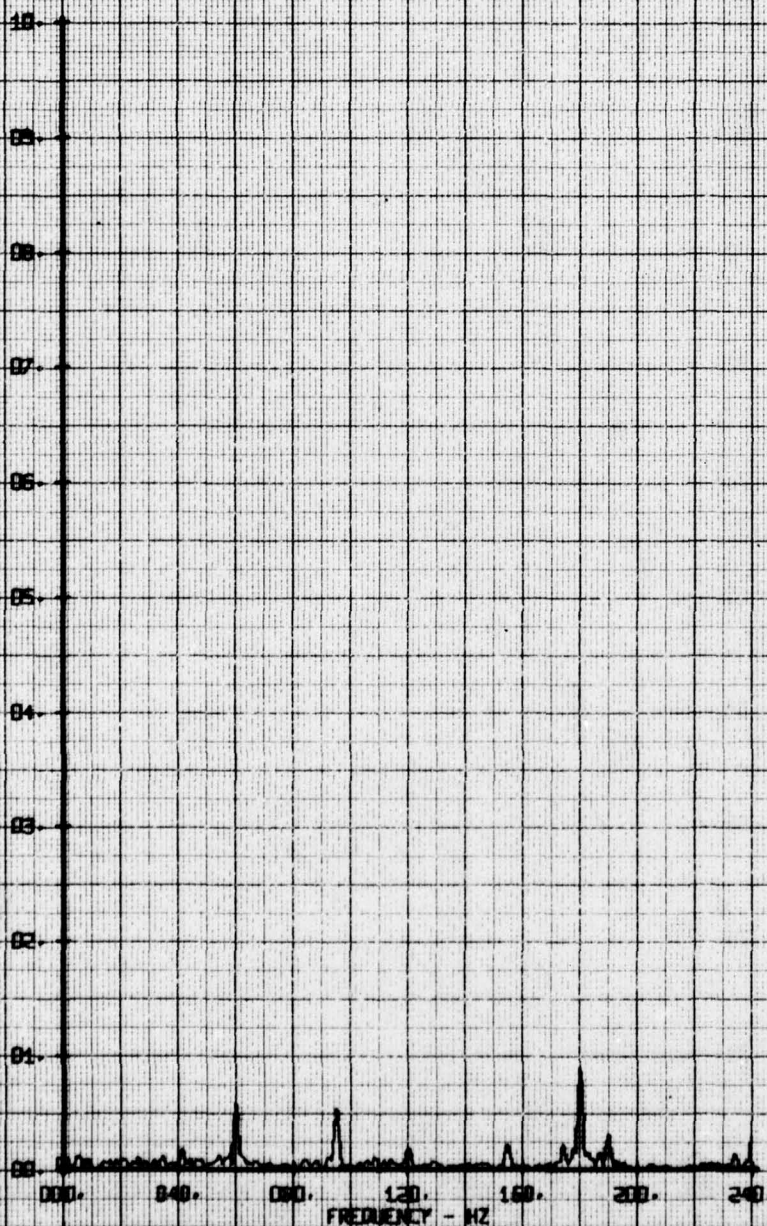


HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE AT T/R C-1.
RUN 111 TP 32

LEGEND

CH
56 V-BETA

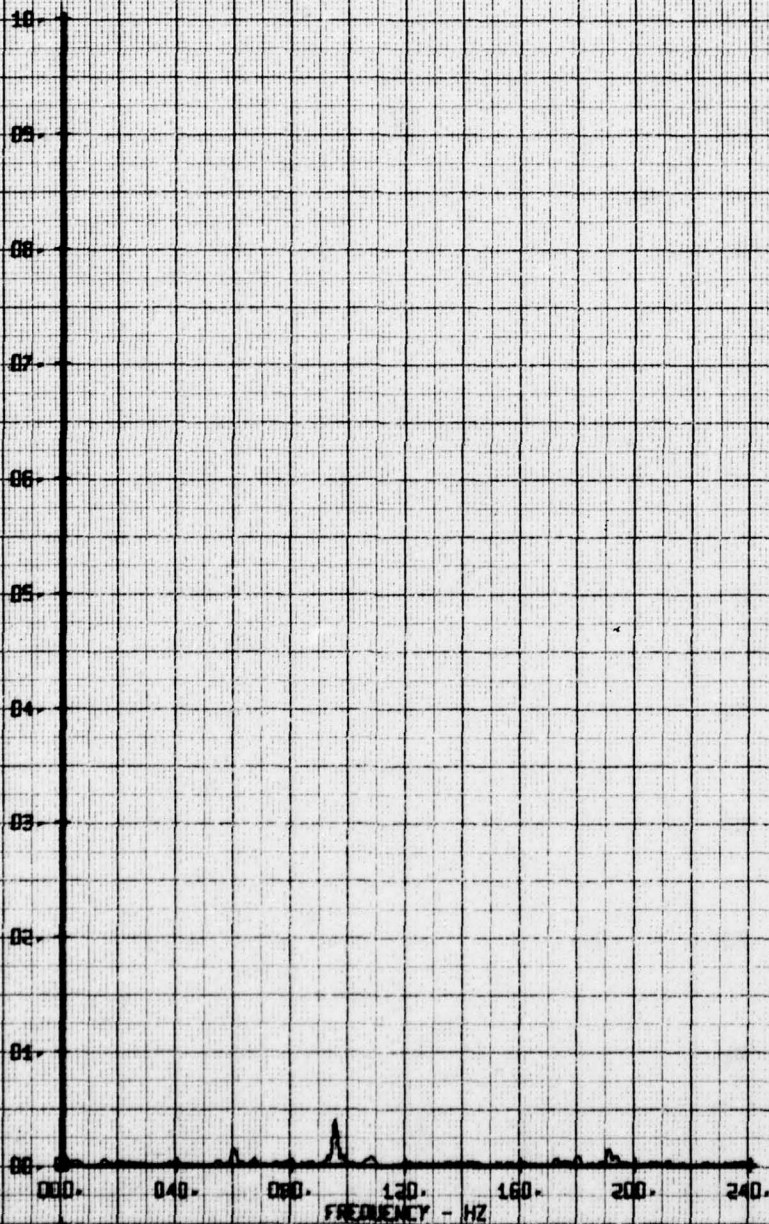
R-2 VELOCITY COMPONENT V-BETA EPS



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE AT 1/2 R C-1
RUN 111 YP 34

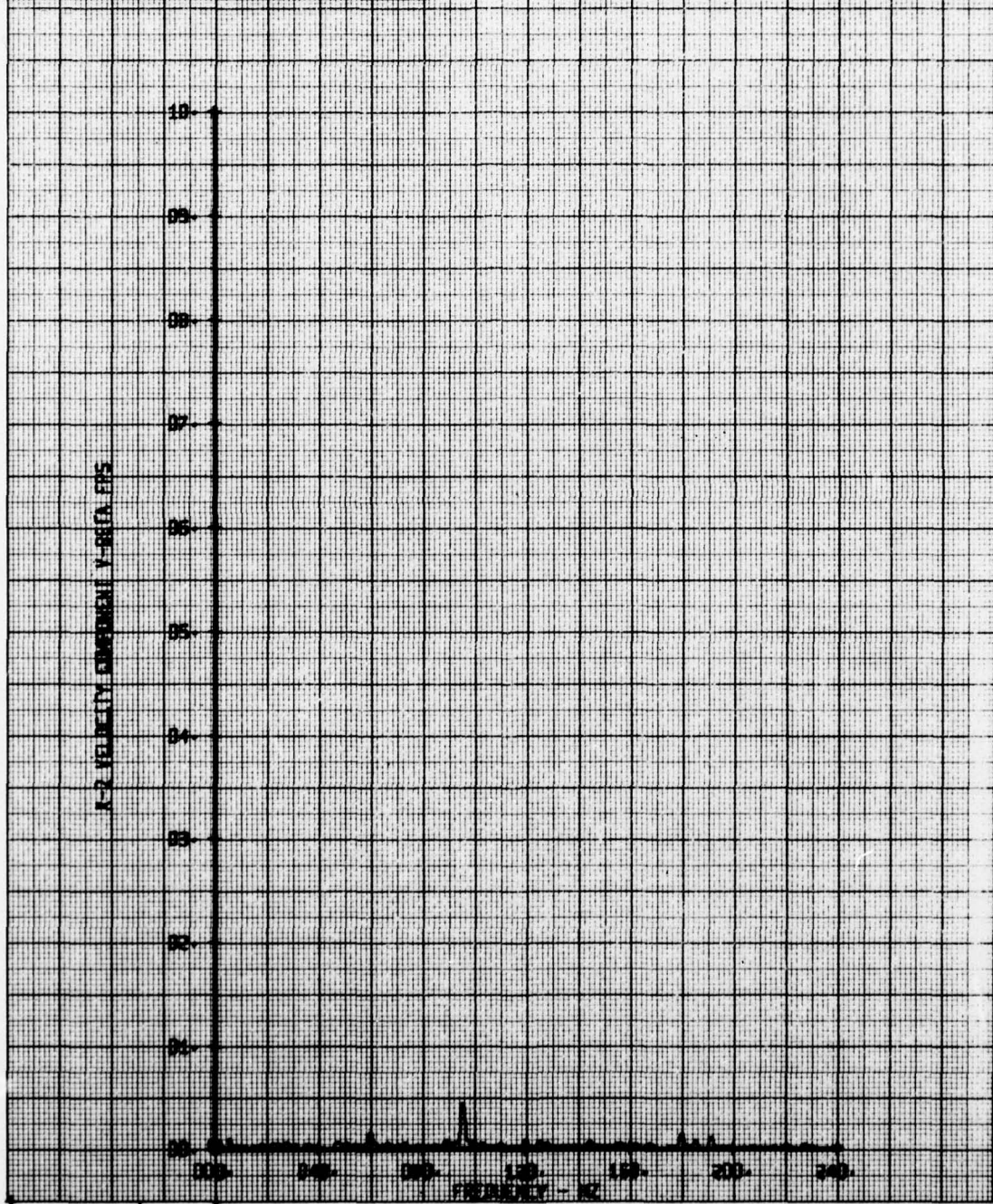
LEGEND
CH
GG V-BETA

K-2 VELOCITY COMPONENT V-BETA EPS



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE AT 1/8 C-L.
RUN 111 TP 36

LEGEND
CM
55 V-BETA

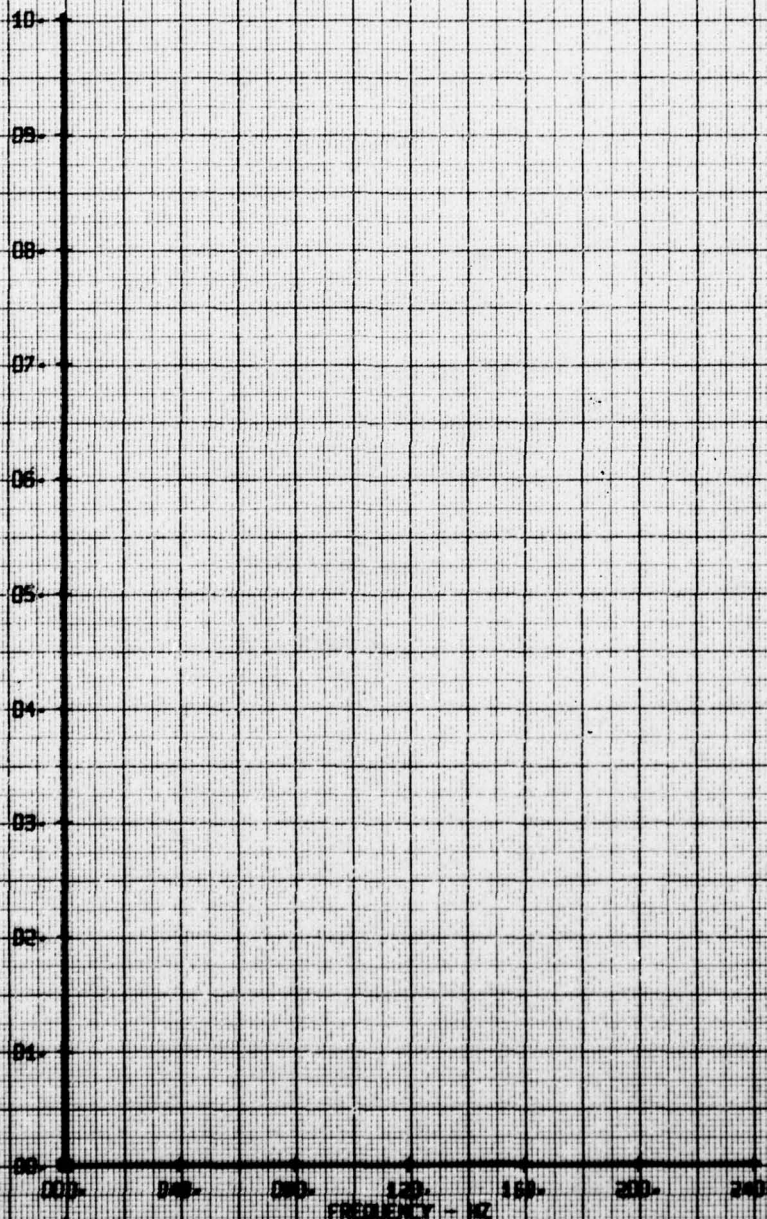


HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE AT T/R C-L.
RUN 111 TP 38

LEGEND

CH
55 V-BETA

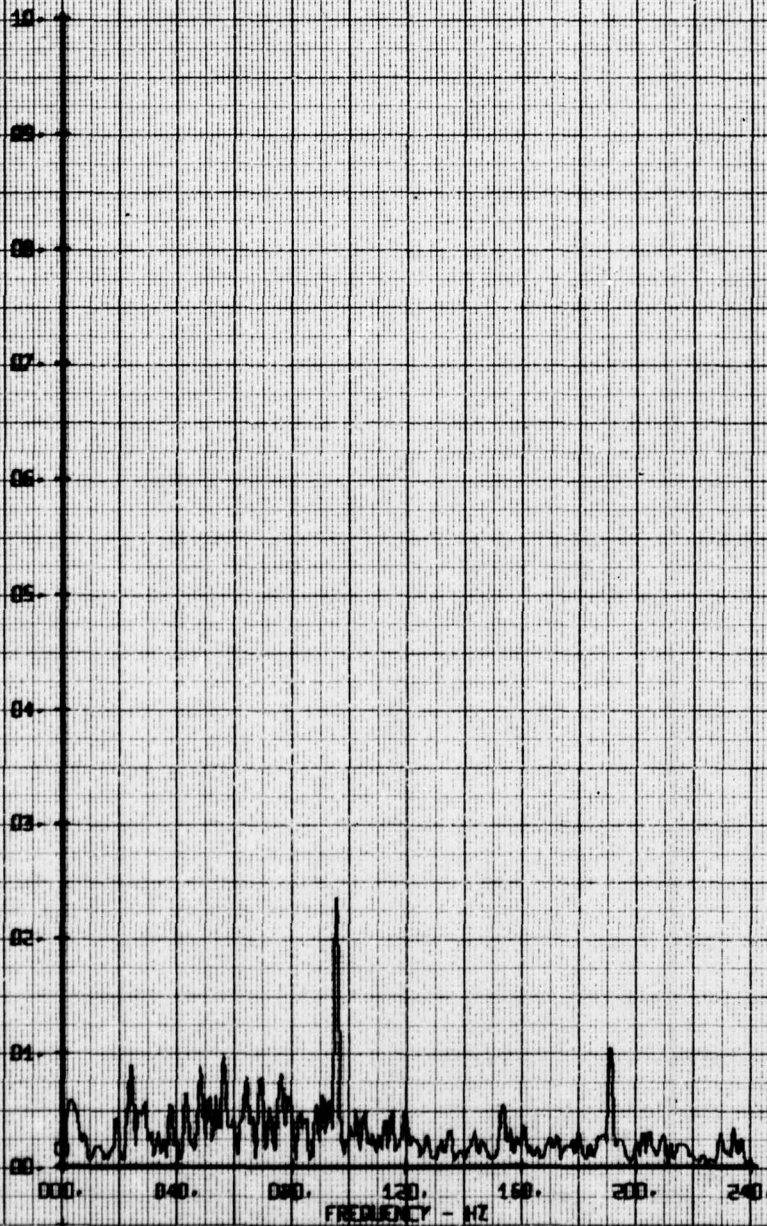
K-Z VELOCITY COMPONENT V-BETA FPS



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE ABOVE 1/2 C-L.
RUN 112 TP 2

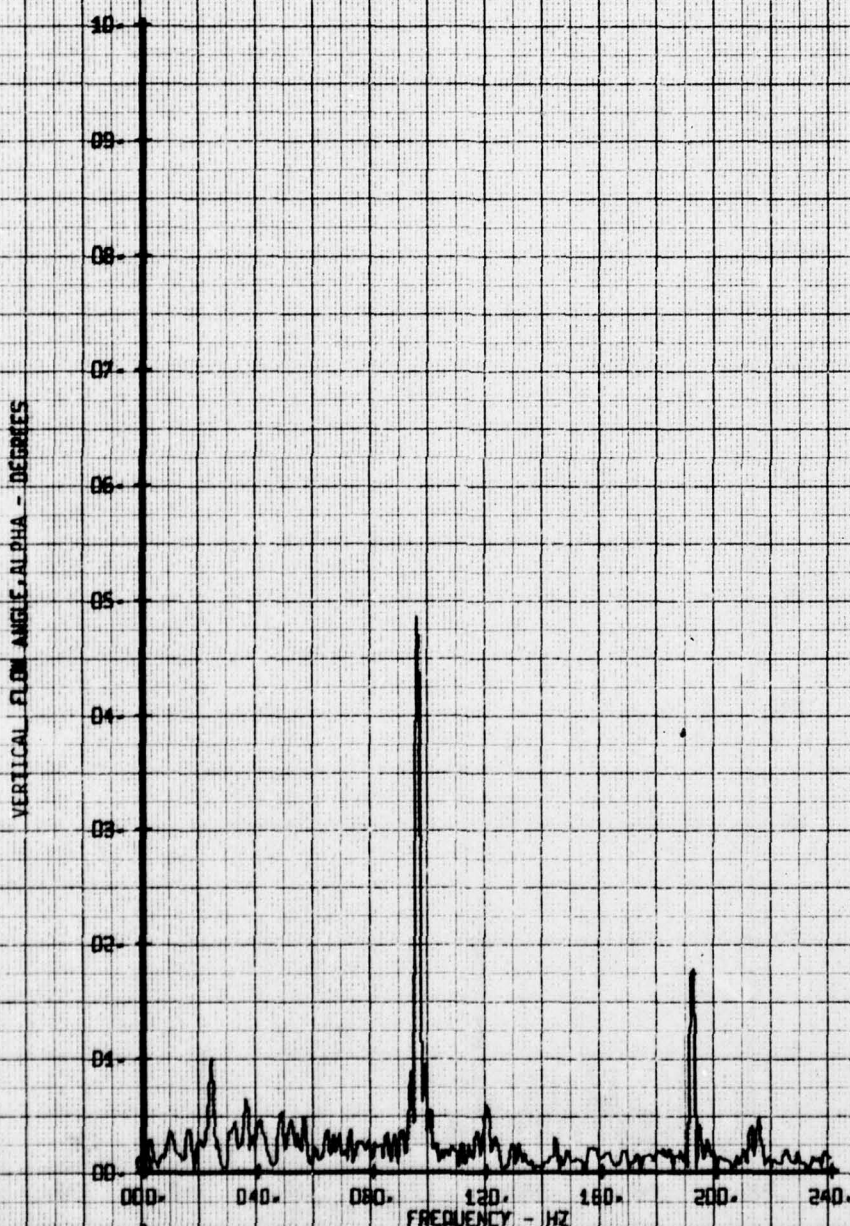
LEGEND
CH PARAMETER
66 ALPHA

VERTICAL FLOW ANGLE, ALPHA - DEGREES



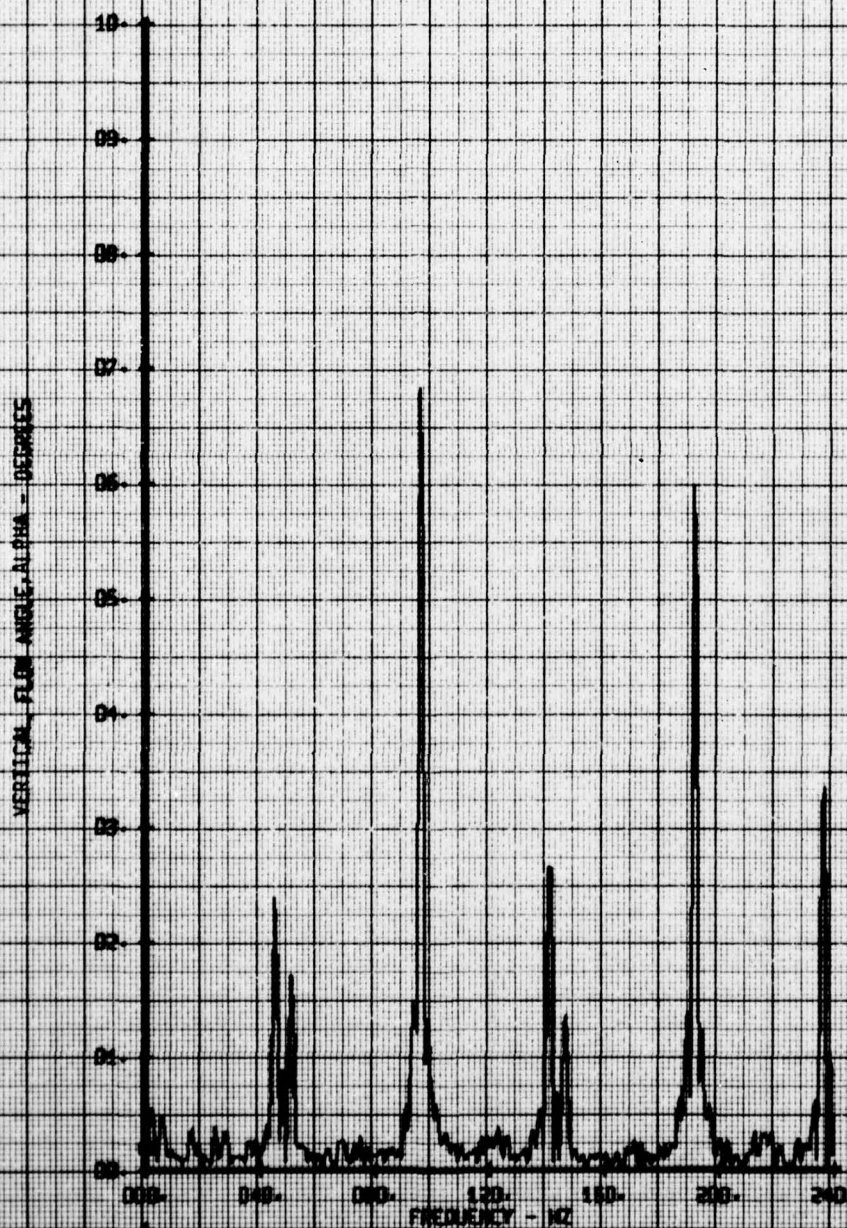
HOT FILM WIRE FREQUENCY ANALYSIS
 BASE CIRCLES - TRAVERSE ABOVE T/R C.L.
 RUN 112 TP 4

LEGEND
 CM PARAMETER
 66 ALPHA



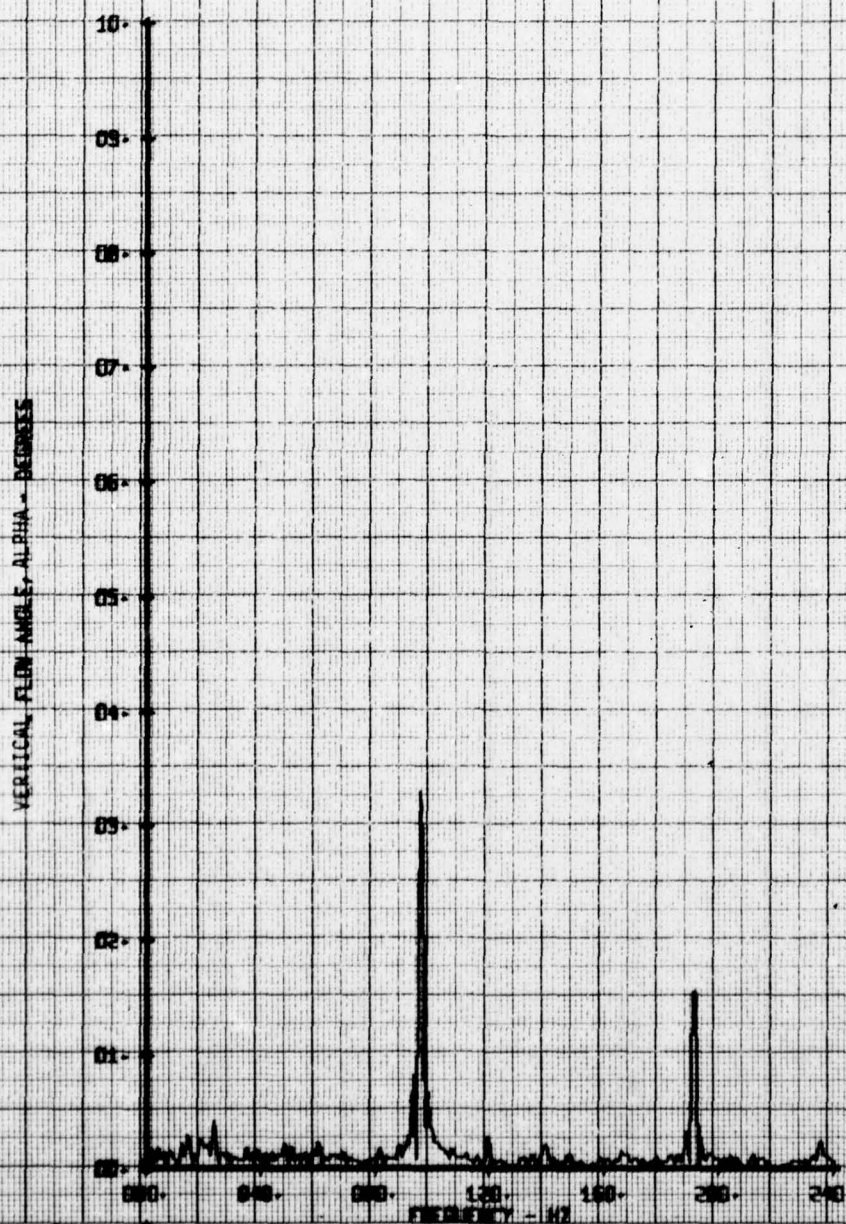
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG: TRAVERSE ABOVE T/R C-L-
RUN 112 TP 6

LESEN
CM PARAMETER
66 ALPHA



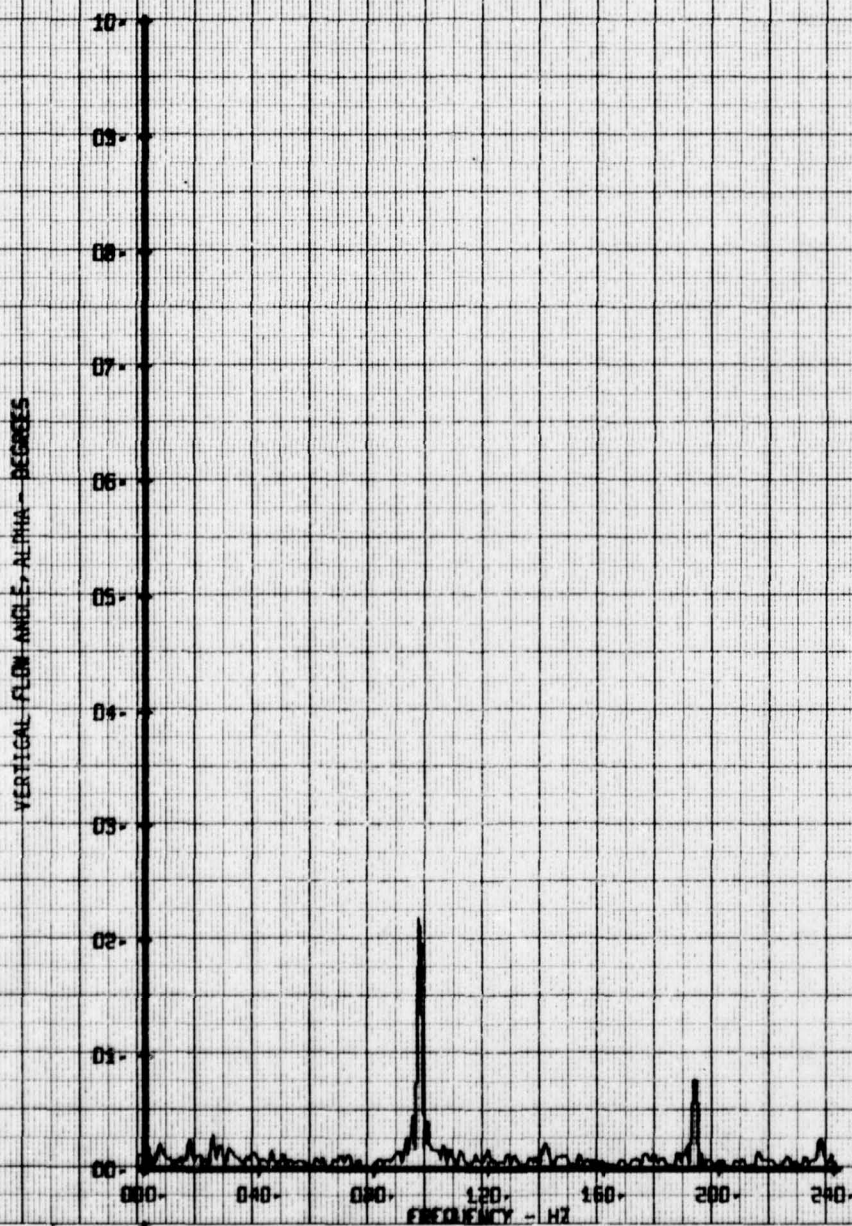
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE ABOVE 1/R C.L.
RUN 112 TP 8

LEGEND
CH PARAMETER
66 ALPHA



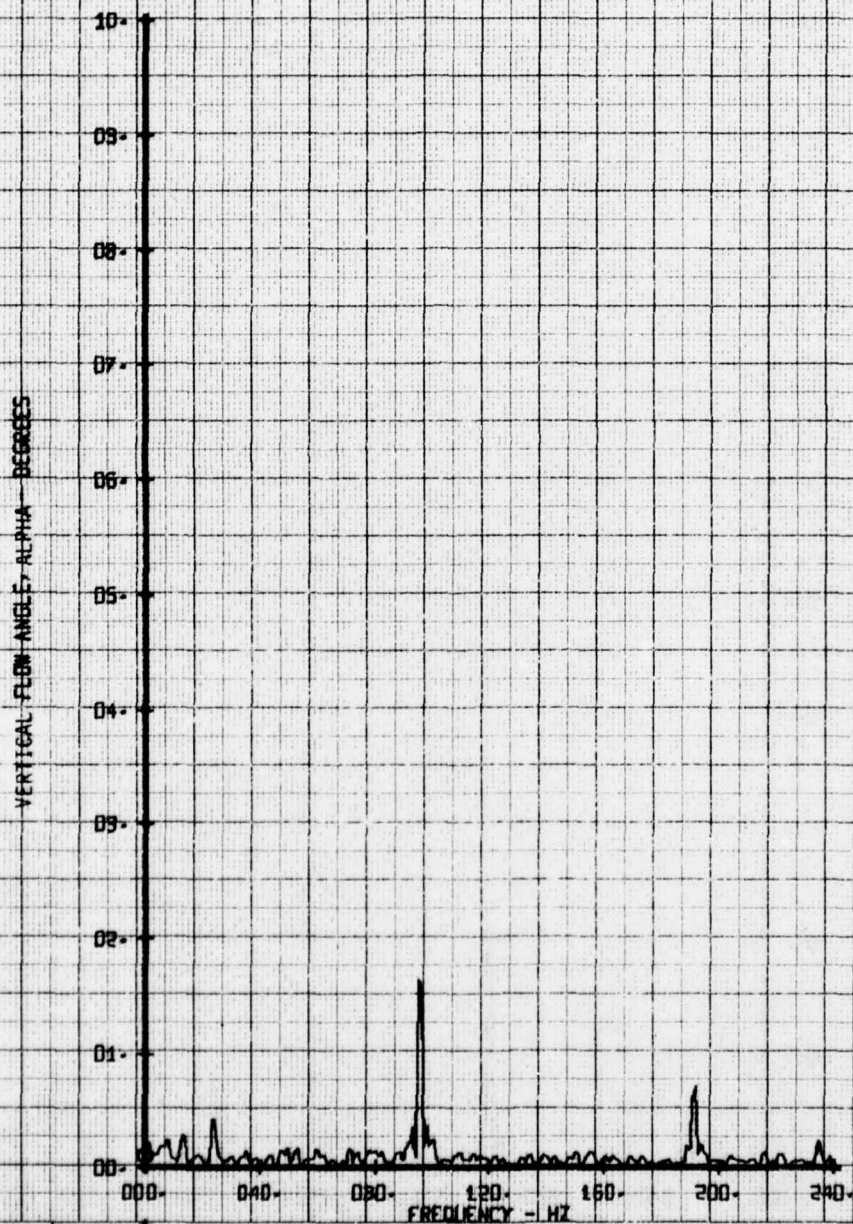
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE ABOVE T/R C.L.
RUN 112 TP 10

LEGEND
CH PARAMETER
66 ALPHA



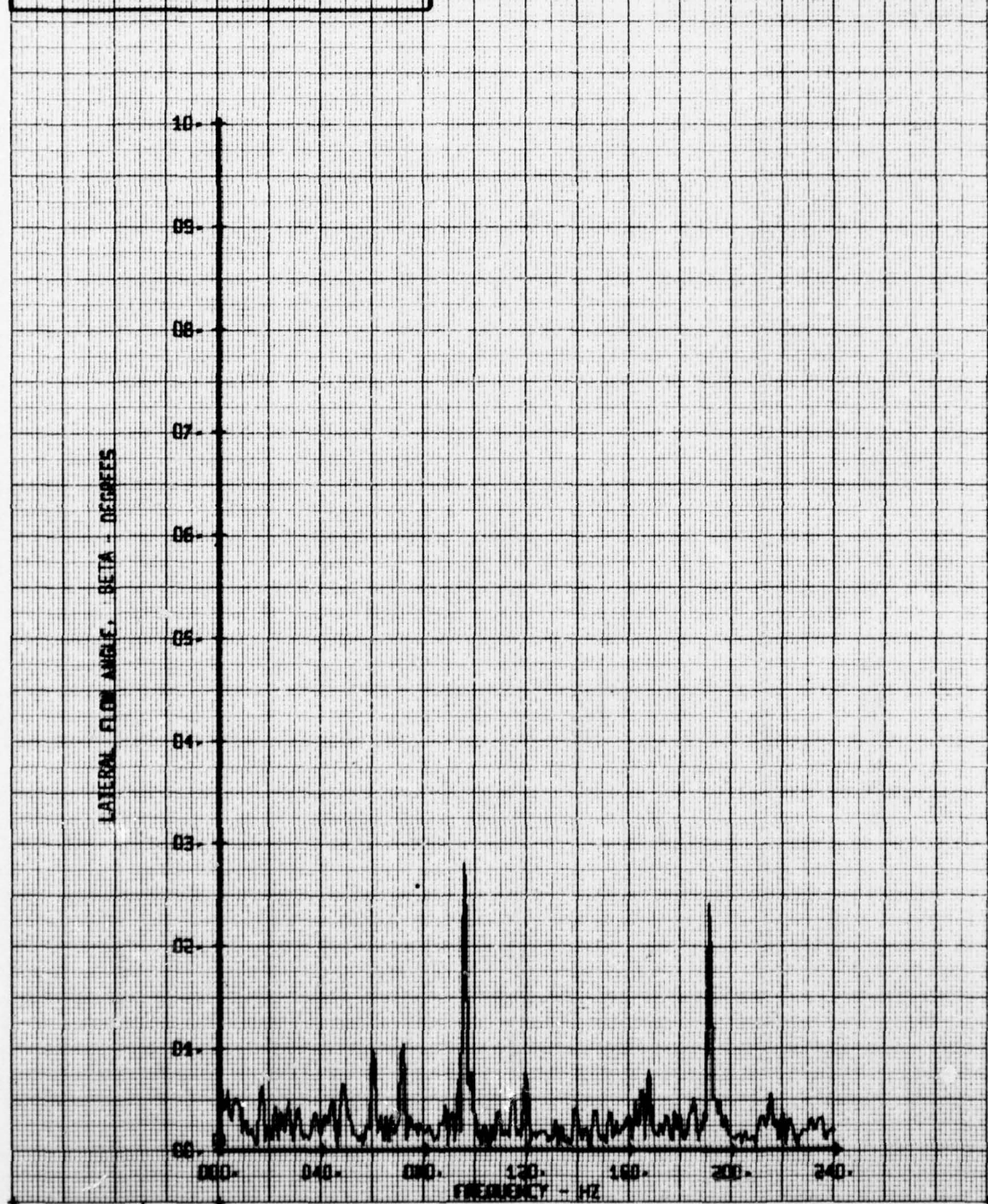
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BASE CONFIG. TRAVERSE ABOVE T/R C.L.
RUN 112 TP 12

LEGEND
CH PARAMETER
66 ALPHA



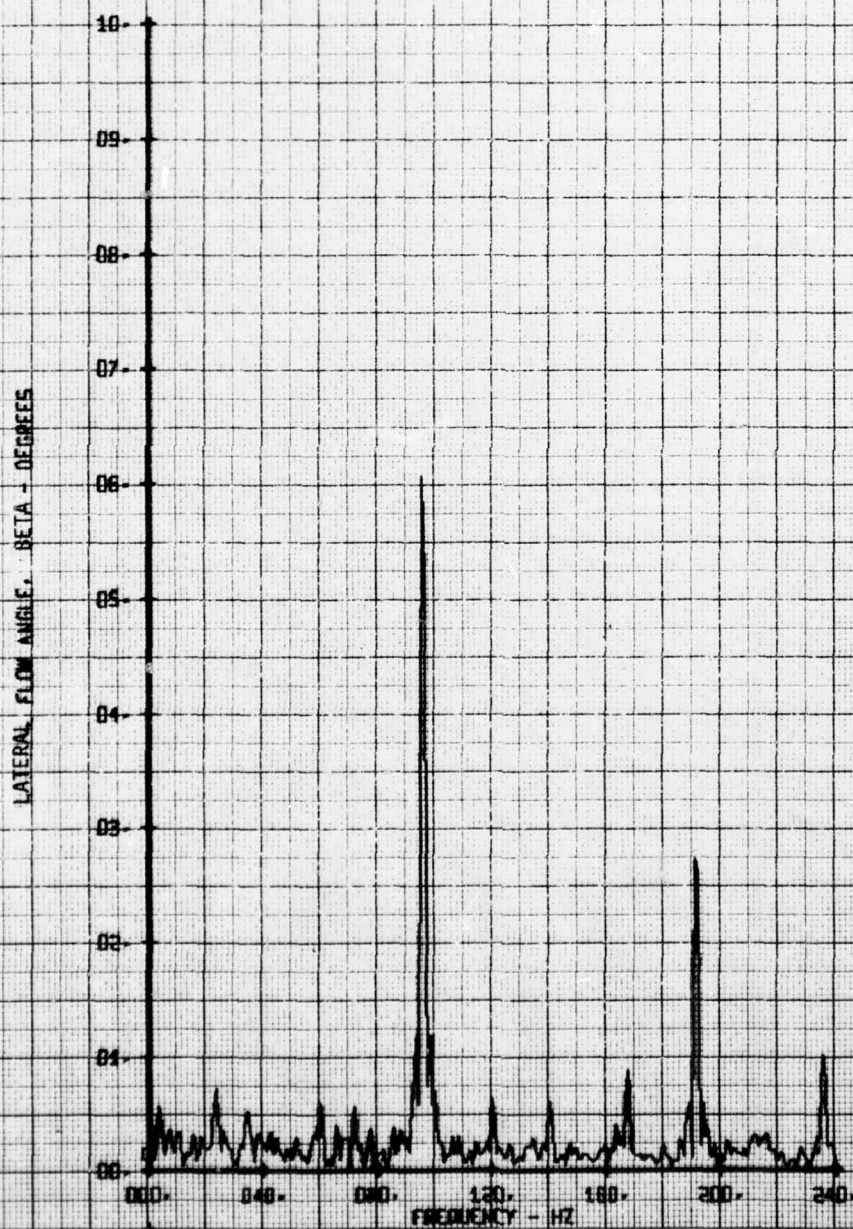
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BASE CONFIG. TRAVERSE ABOVE T/R C.L.
RUN 112 TP 2

LEGEND
CH PARAMETER
65 BETA



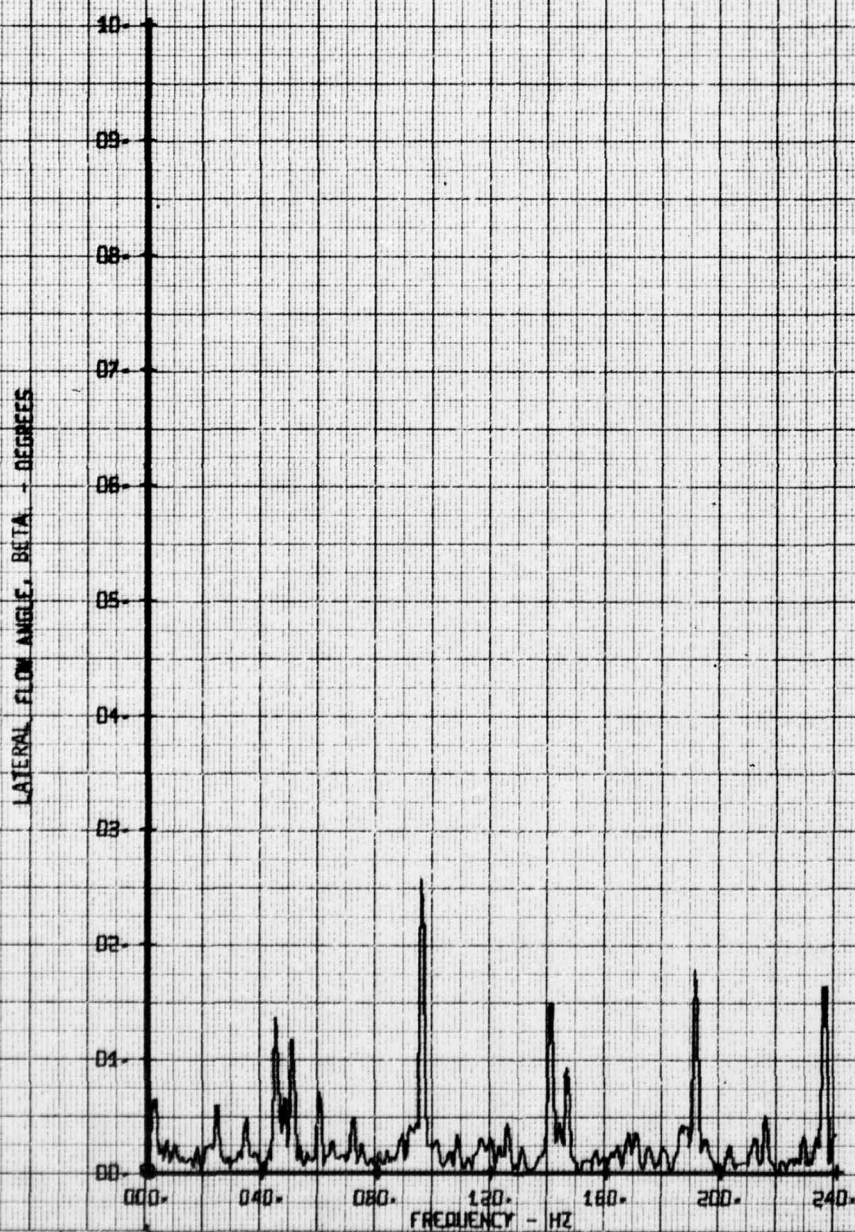
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BASE CONFIG: TRAVERSE ABOVE T/R C.L.
RUN 112 TP 4

LEGEND
CH: PARAMETER
65 BETA



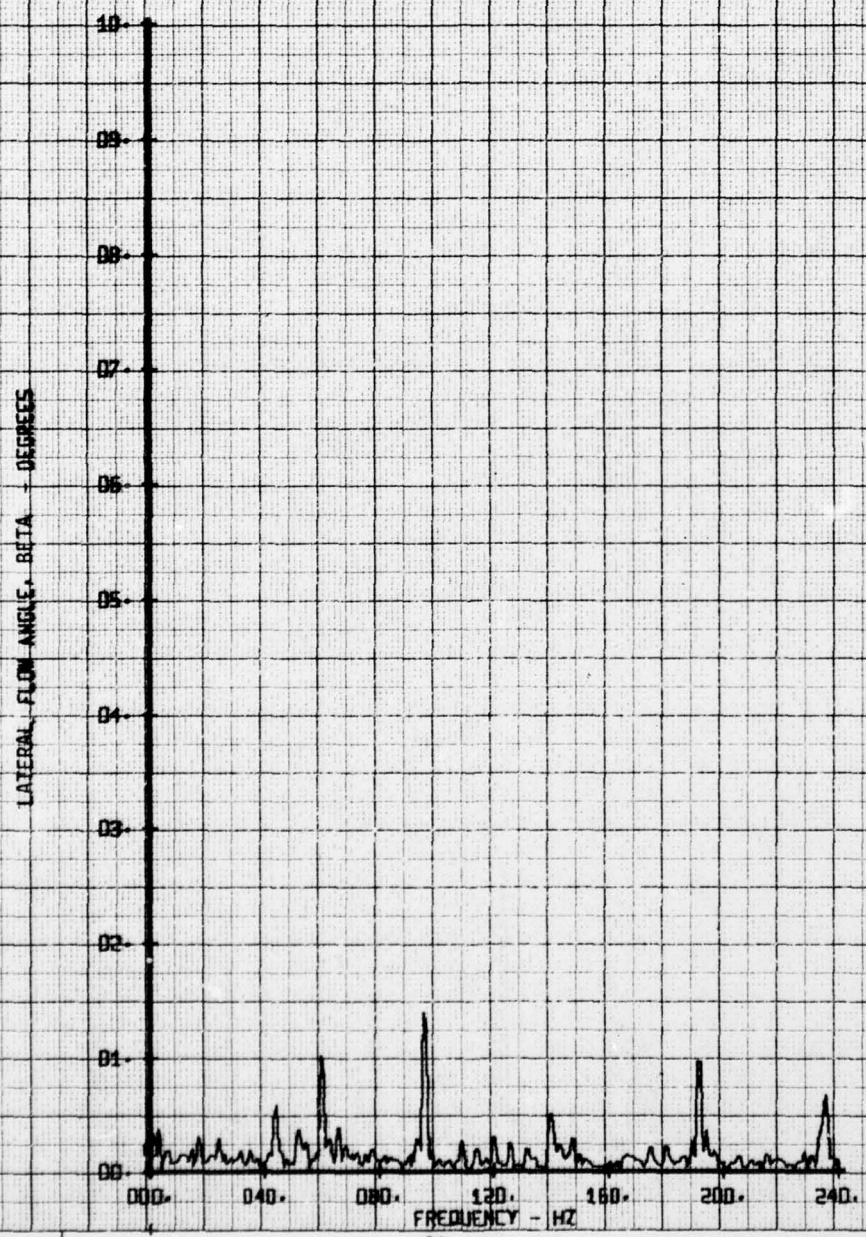
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONF 16. TRAVERSE ABOVE T/R C.L.
RUN 112 TP 5

LEGEND
CH PARAMETER
65 BETA 1



HOT FILM WAKE FREQUENCY ANALYSIS
 BASE CONFIG- TRANSVERSE ABOVE T/R C-L-
 RUN 112 TP 8

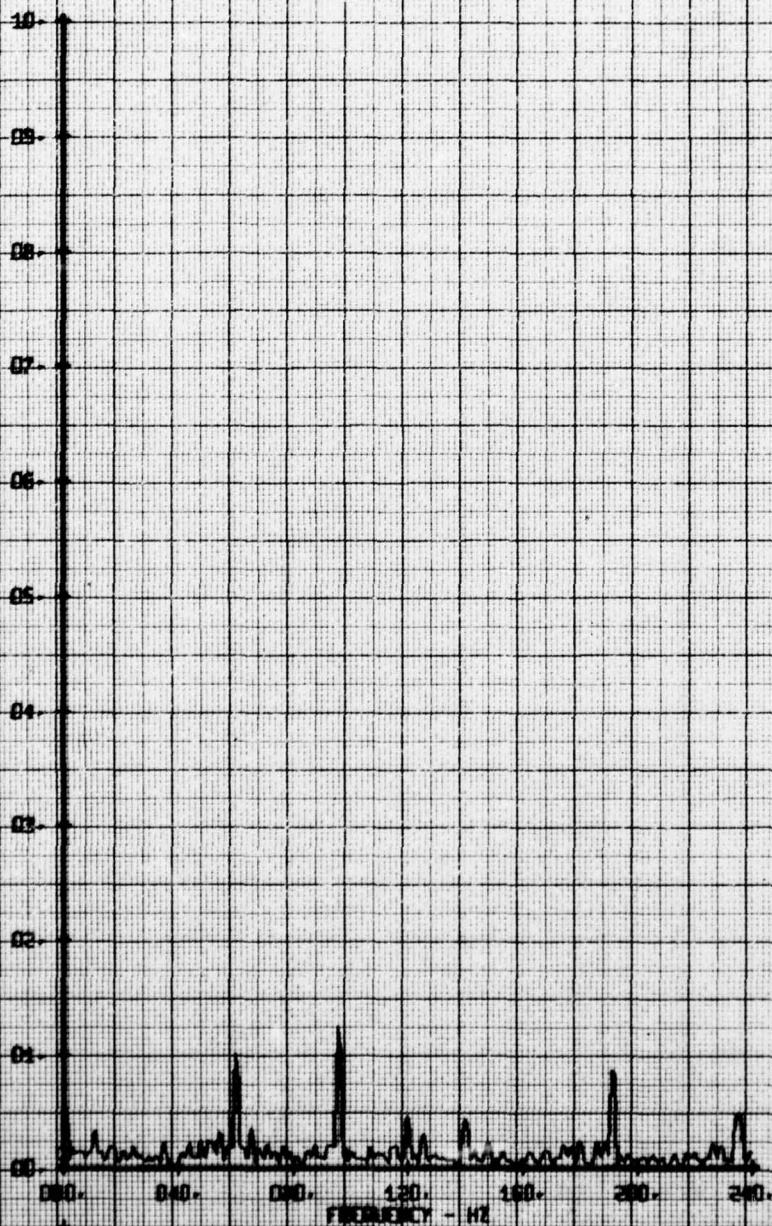
LEGEND
 CM PARAMETER
 65 BETA



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE ABOVE 1/R C-L.
RUN 112 TP 10

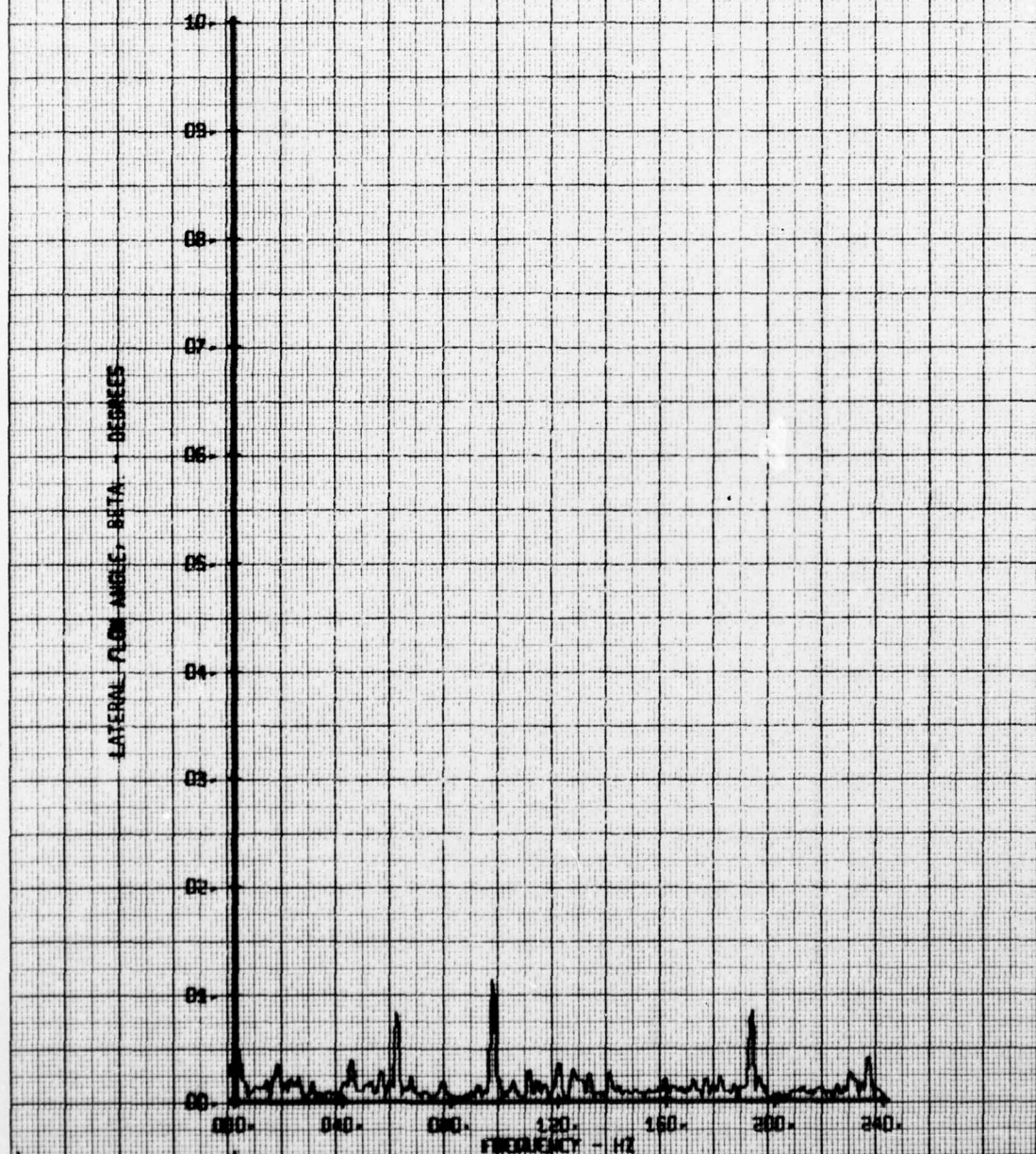
LEGEND
CH PARAMETER
65 BETA

LATERAL FLOW ANGLE, BETA - DEGREES



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE ABOVE T/R C.L.
RUN 112 TP 12

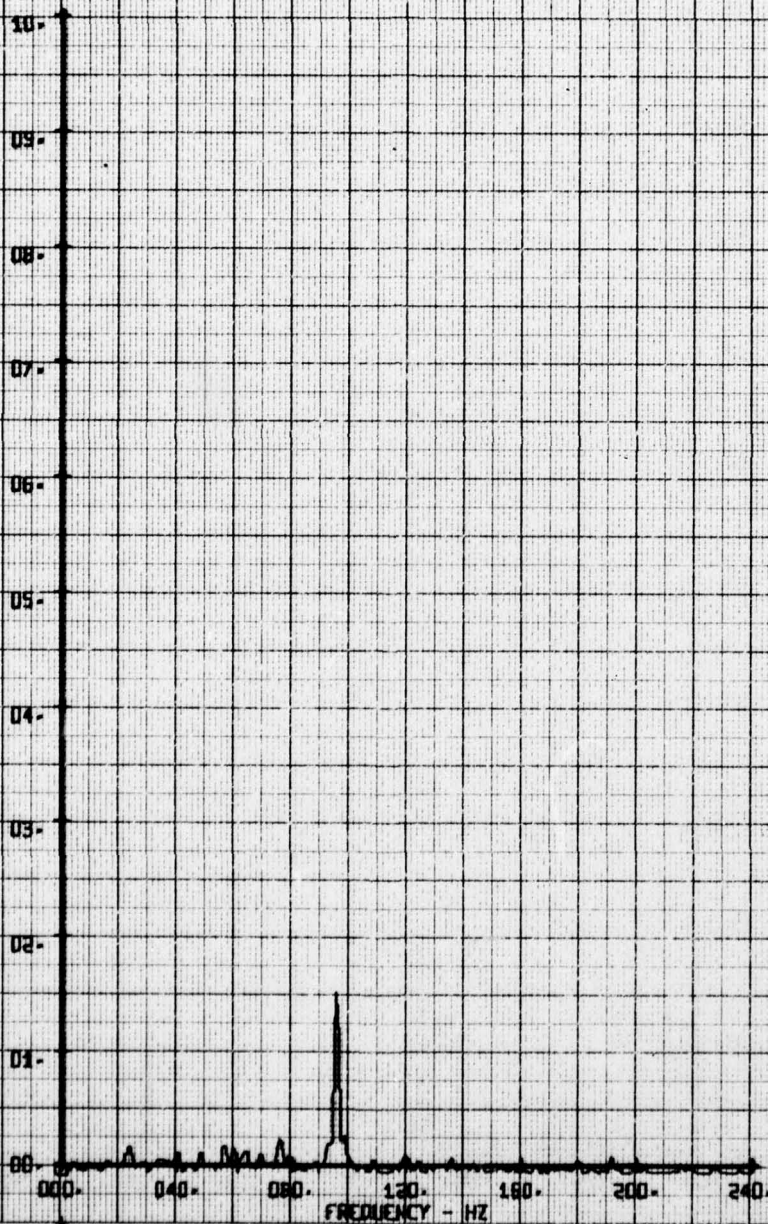
LEGEND
CH PARAMETER
65 BETA



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONTR. TRAVERSE ABOVE T/R C.L.
RUN 112 IP 2

LEGEND
CH PARAMETER
66 V-ALPHA

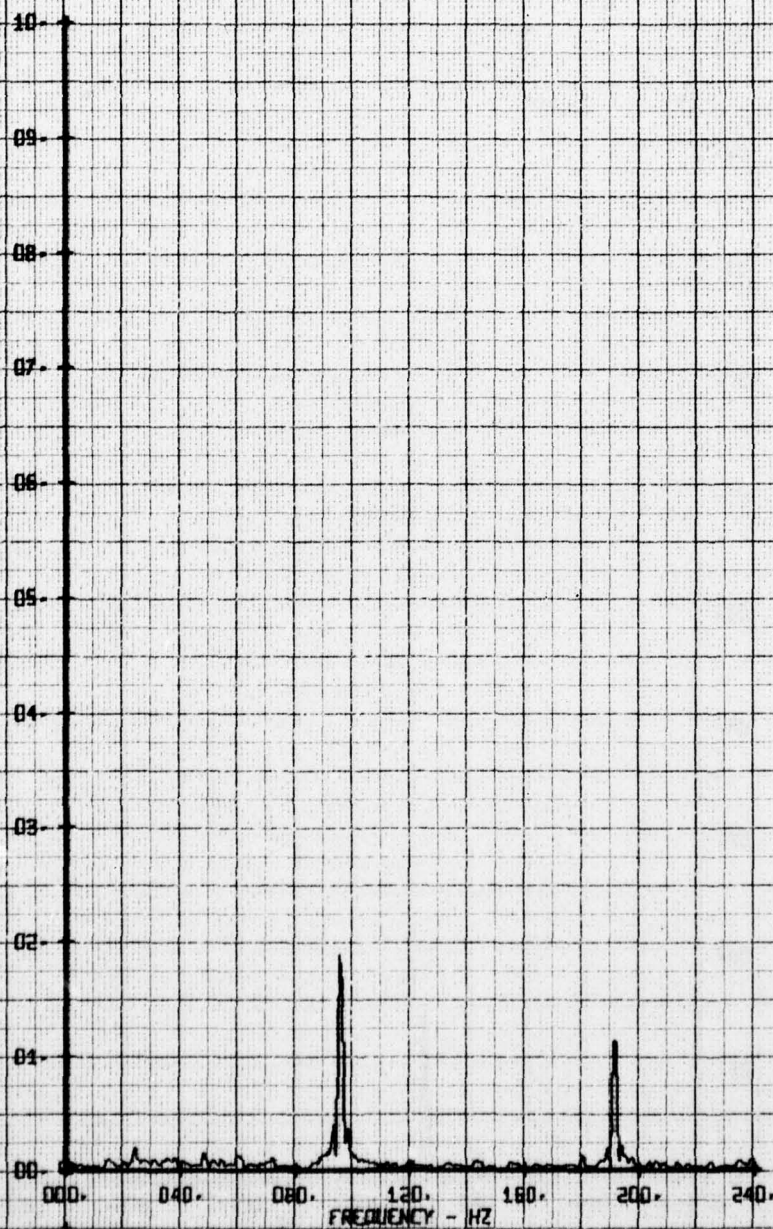
X-Y VELOCITY COMPONENT V-ALPHA EPS



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE ABOVE T/R C.L.
RUN 112 TP 4

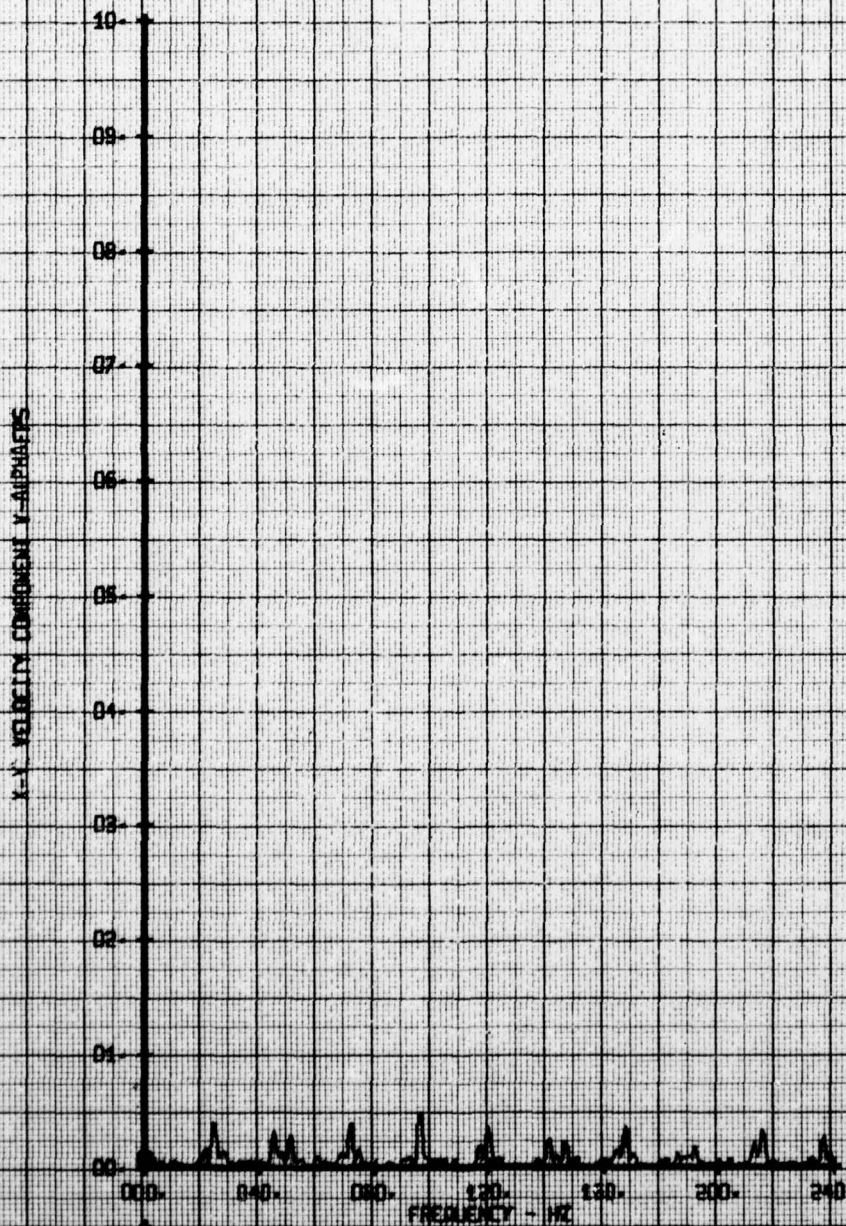
LEGEND
CH PARAMETER
66 V-ALPHA

X-Y VELOCITY COMPONENT V-ALPHAS



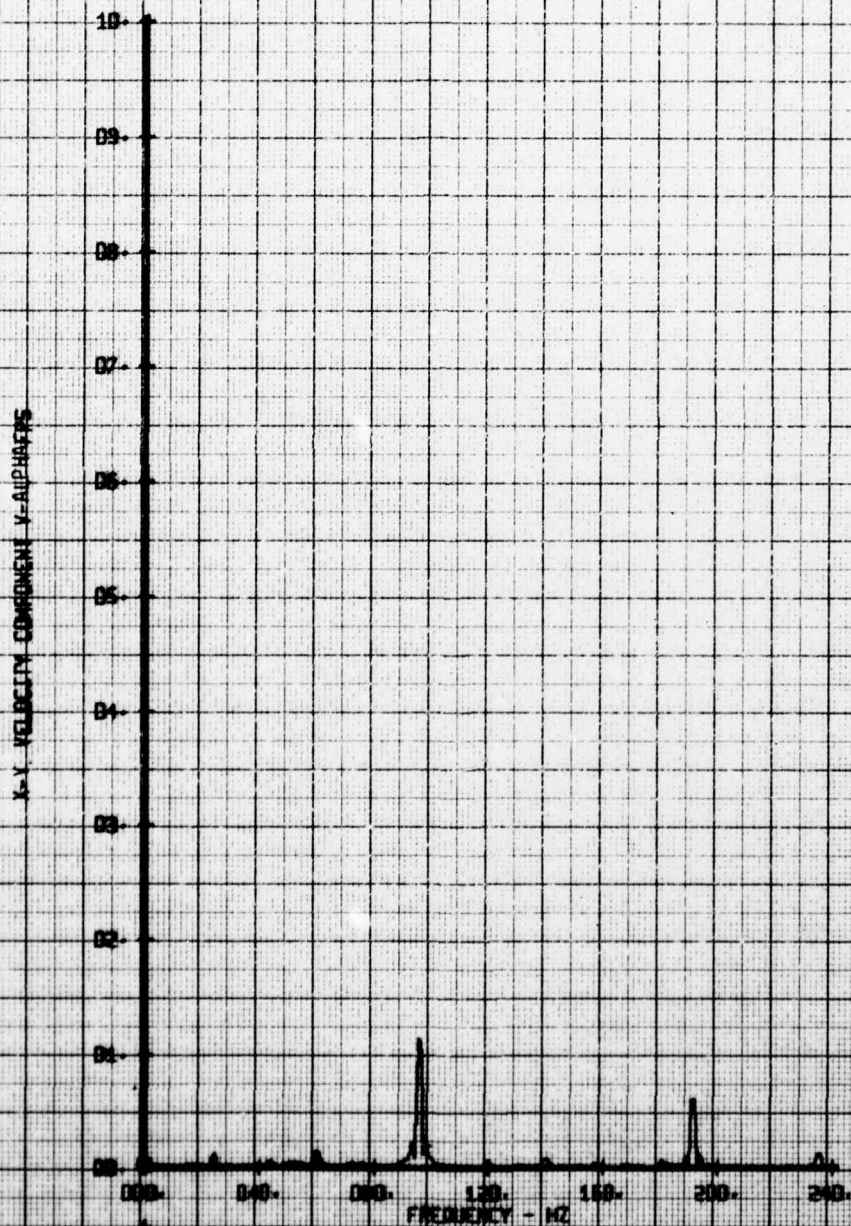
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RUN 112 TP 5

LEGEND
CH PARAMETER
66 V-ALPHA



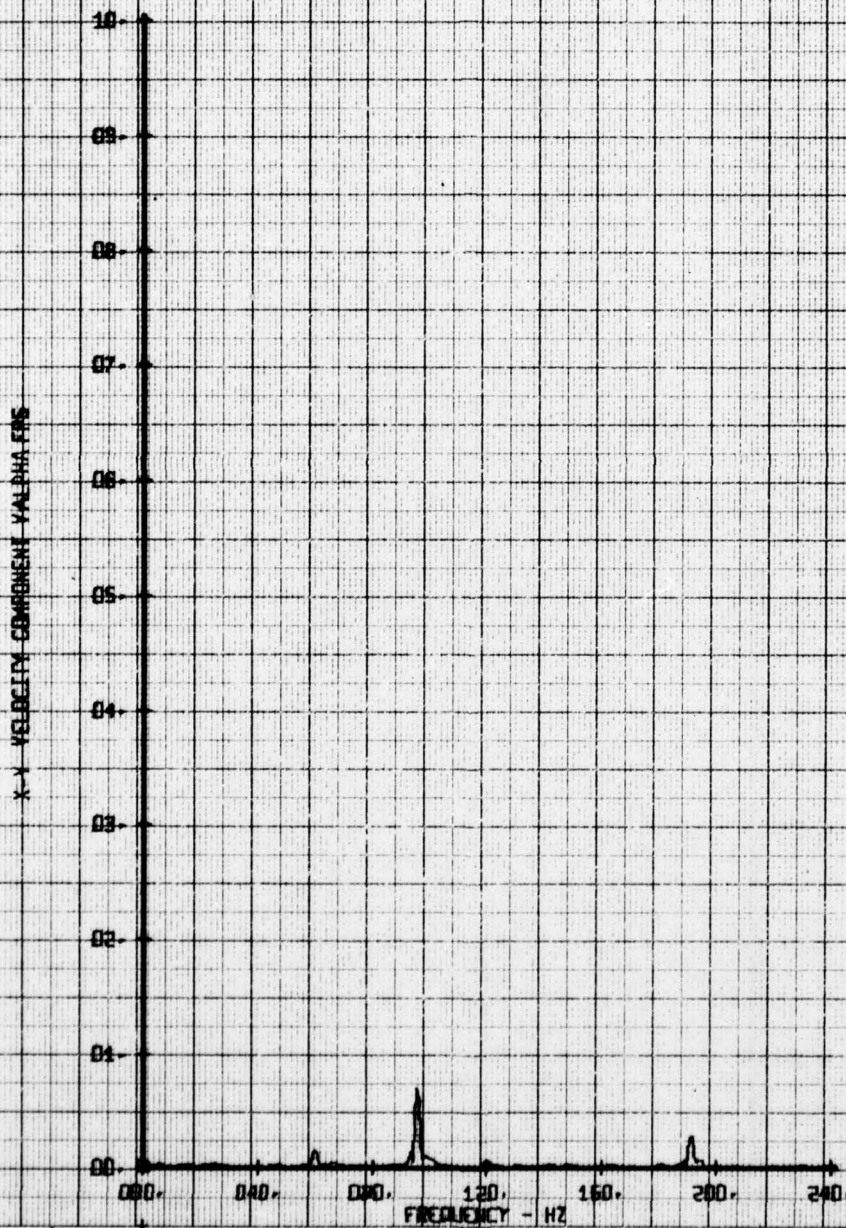
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BASE CONFIG. TRAVERSE ABOVE T/R C-L.
RUN 112 TP 8

LEGEND
CH PARAMETER
66 V-ALPHA



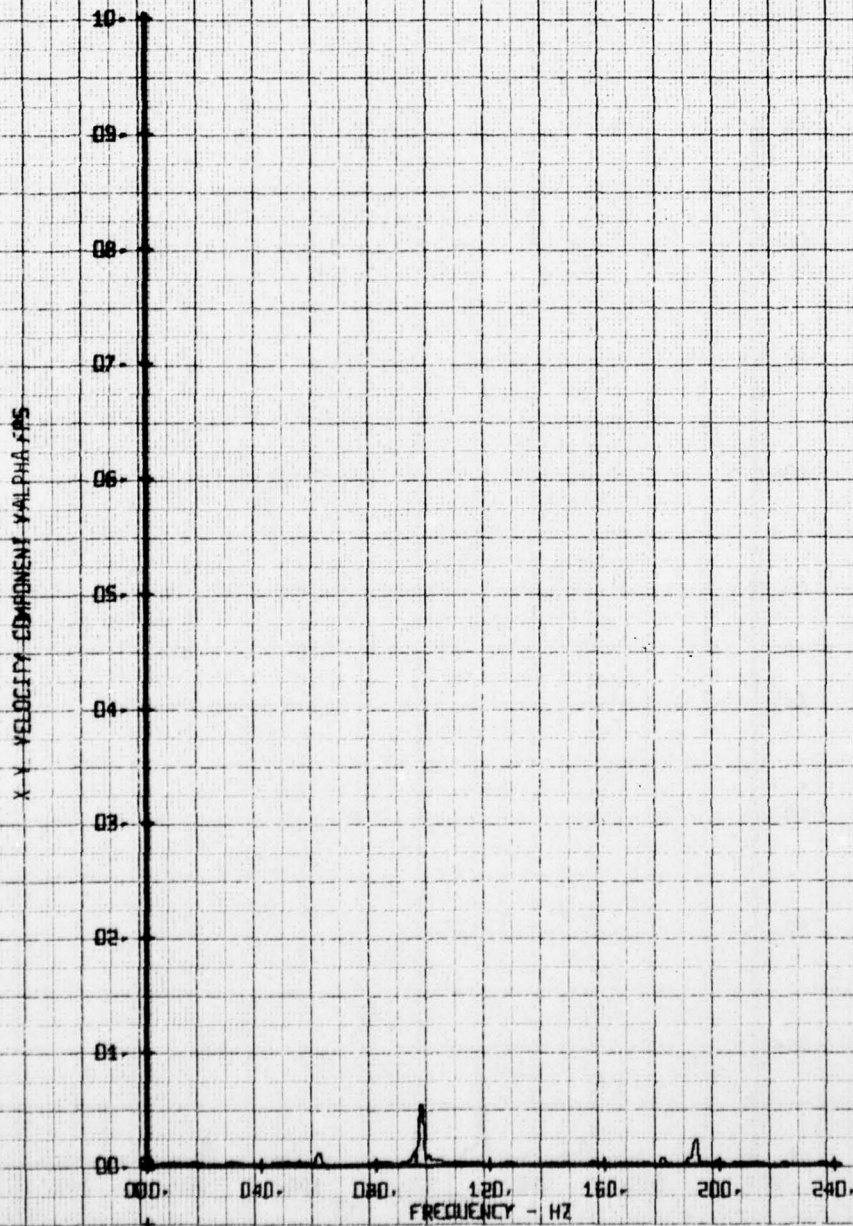
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BASE CONFIG. TRAVERSE ABOVE 1/R C.L.
RUN 1.2 TP 10

LEGEND
CH PARAMETER
66 V-ALPHA



NOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE ABOVE T/R C.L.
RUN 112 TP 12

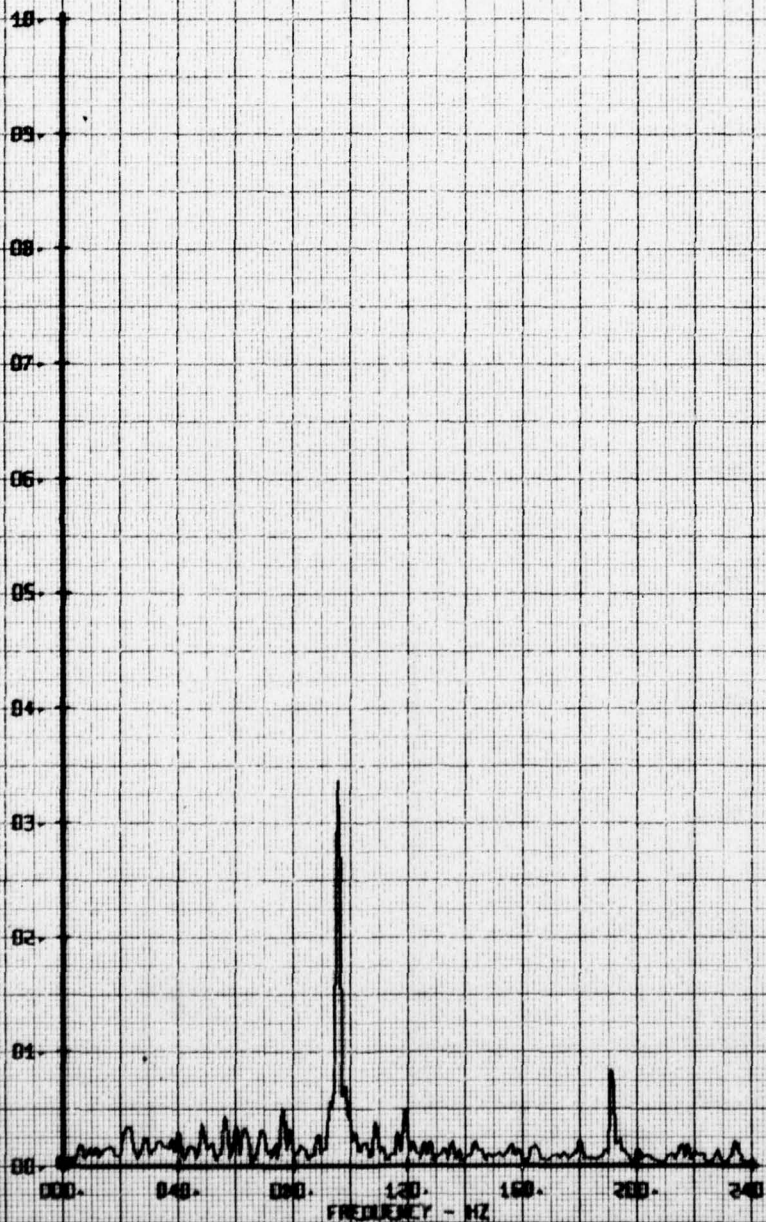
LEGEND
CH PARAMETER
66 V-ALPHA



HDT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE ABOVE T/R C-L-
RUN 112 TP 2

LEGEND
CH 65
PARAMETER
V-BETA

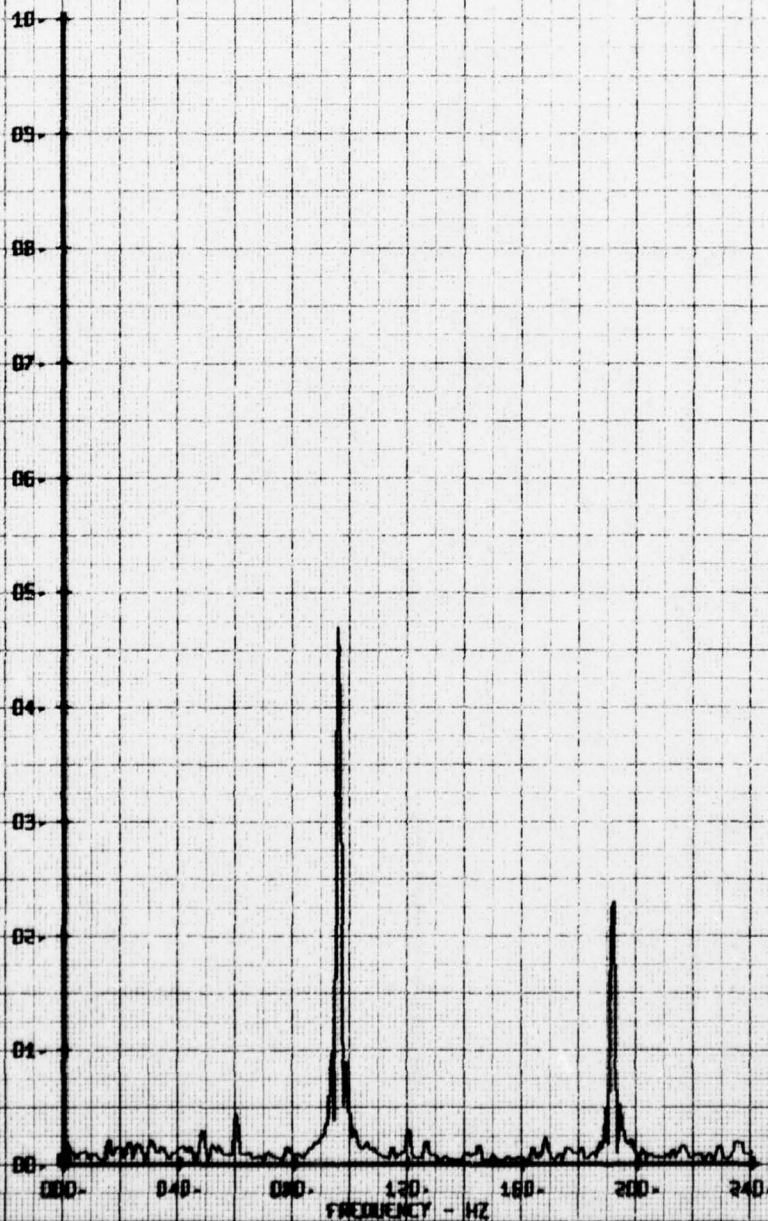
X-Z VELOCITY COMPONENT V-BETA FPS



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE ABOVE T/R C-L.
RUN 112 TP 4

LEGEND
CH 65
PARAMETER
V-BETA

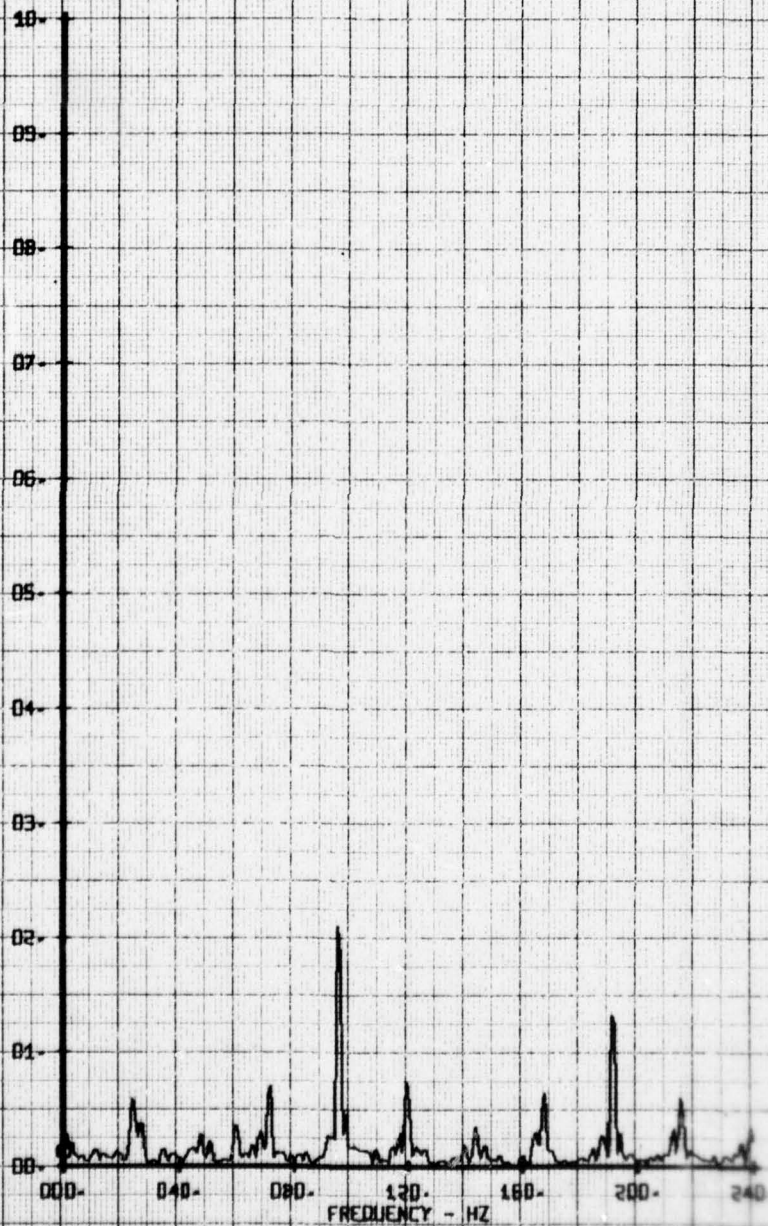
X-Z VELOCITY COMPONENT V-BETA FPS



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE ABOVE T/R C-L.
RUN 112 TP 6

LEGEND
CH 65
PARAMETER
V-BETA

X-Z VELOCITY COMPONENT V-BETA FPS



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F/G 1/3

INTERACTIONAL AERODYNAMICS OF THE SINGLE ROTOR HELICOPTER CONFI--ETC(U)

SEP 78 P F SHERIDAN

DAAJ02-77-C-0020

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USARTL-TR-78-236

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2 OF 4

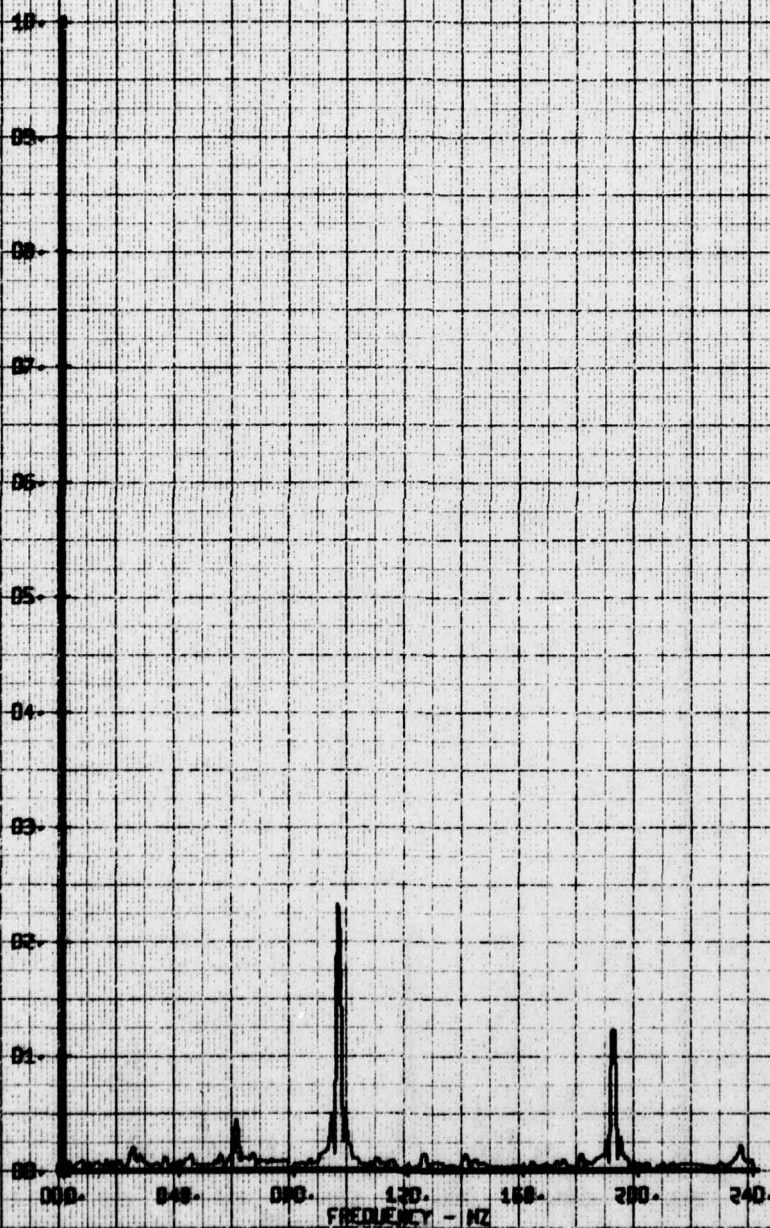
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A063243



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 BASE CONEX- TRANSVERSE ABOVE T/O C.L.
 RUN 112 TP 8

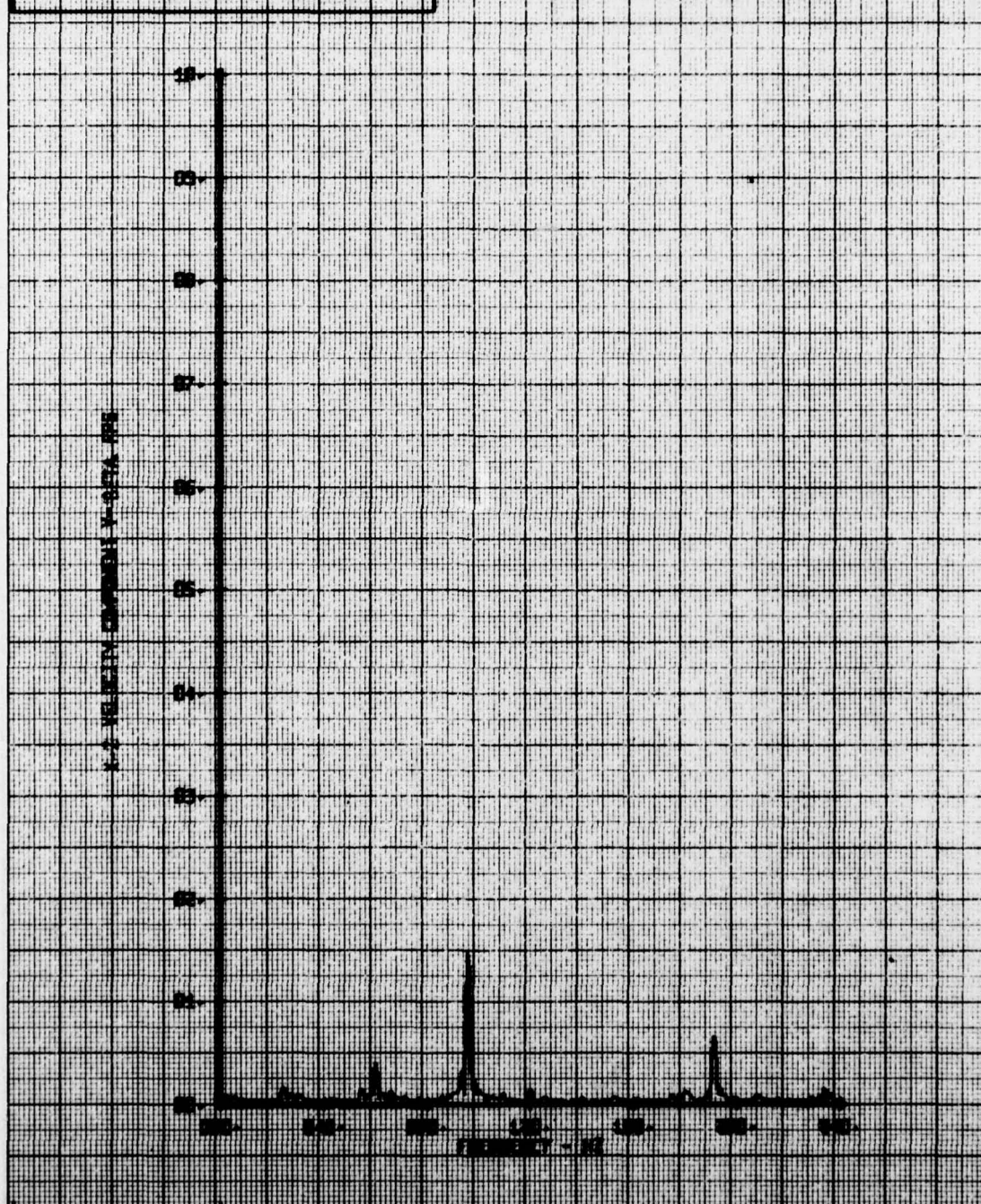
LEGEND
 CM PARAMETER
 05 V-BETA

X-Z VELOCITY COMPONENT V-BETA RMS



NOT FILM WARE FREQUENCY ANALYSIS
 BASE CONFIG. TRANSFER ABOVE T/R C-L.
 RIN 112 TP 10

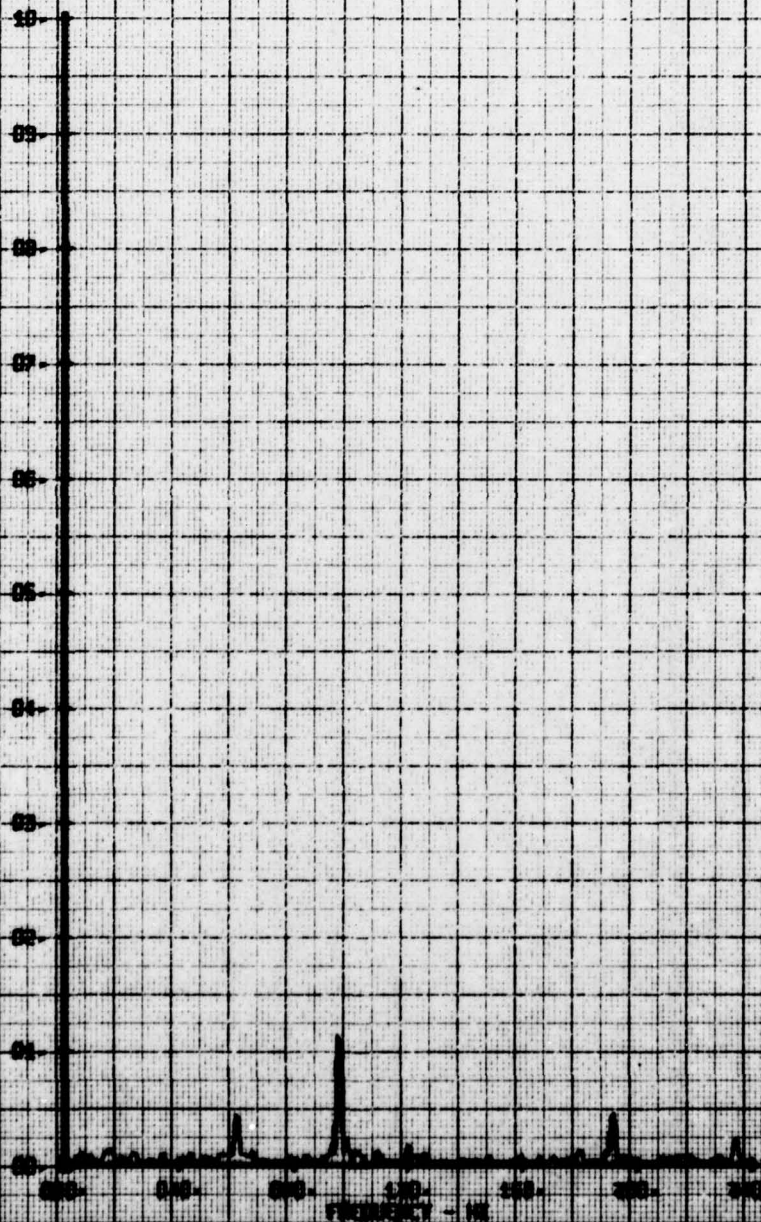
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 CH PARAMETER
 65 V-BETA



NOT FILM WARE FREQUENCY ANALYSIS
 BASE CONFID. TRAVERSE ABOVE T/R C-L.
 RUN 112 TP 12

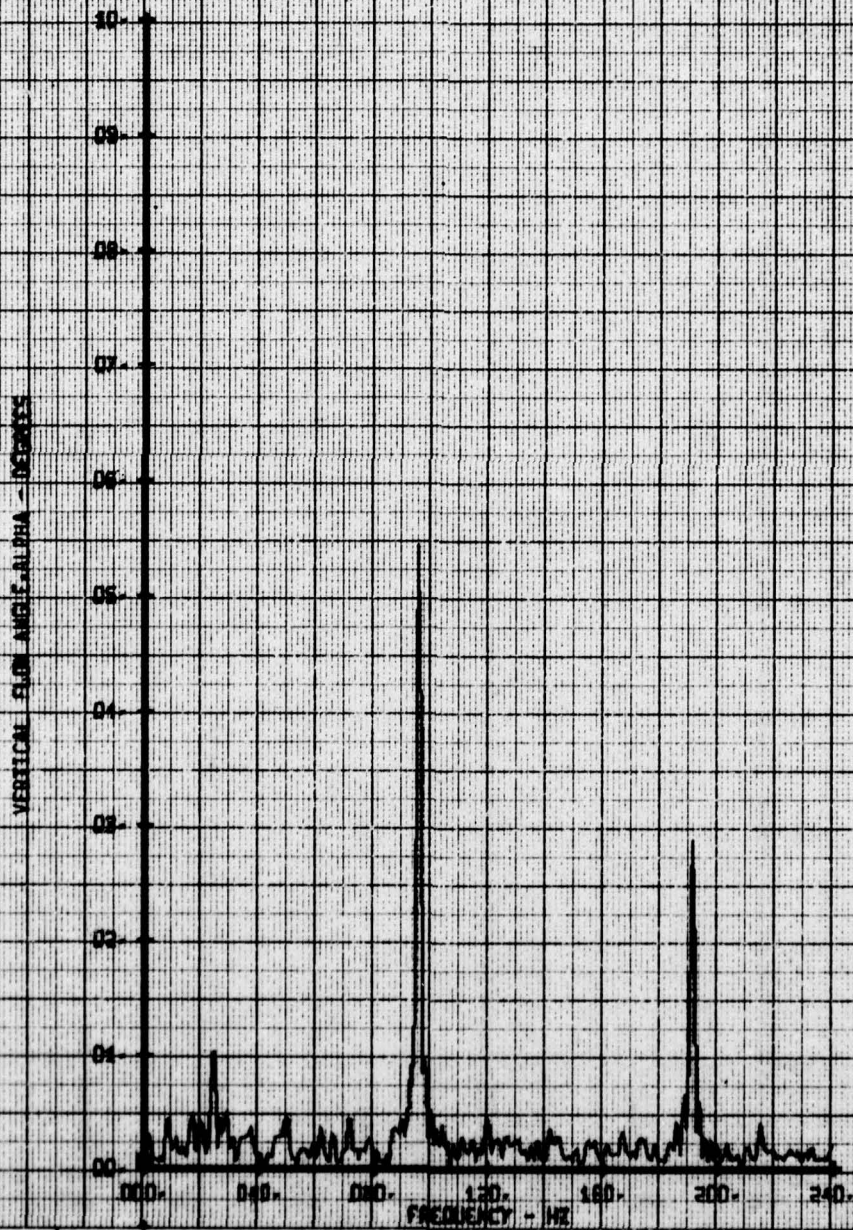
LEGEND
 CH PARAMETER
 65 V-BETA

K-2 VELBETH COMPONENT V-BETA RMS



NOT FILM WAKE FREQUENCY ANALYSIS
BASE CONF. TRAVERSE THROUGH VORTEX
RUN 123 TP 2

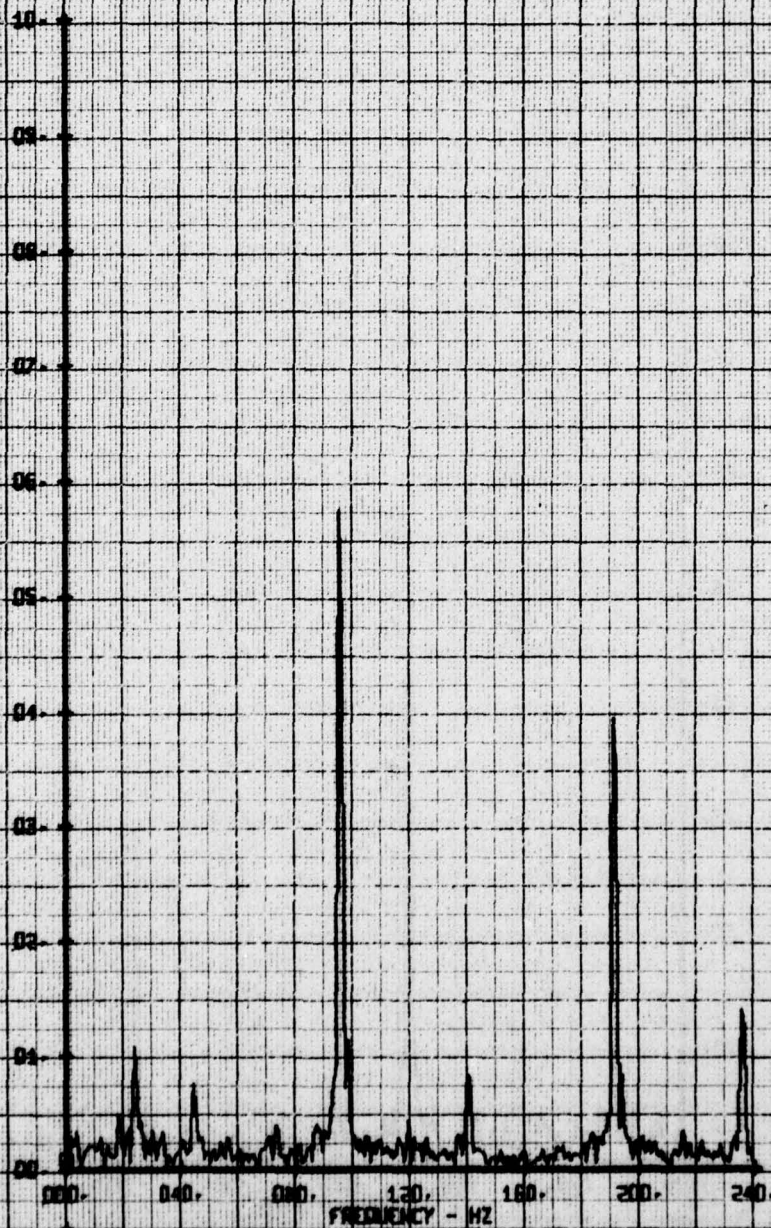
LEGEND
CH PARAMETER
66 ALPHA



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE THROUGH VORTEX
RUN 113 TP 4

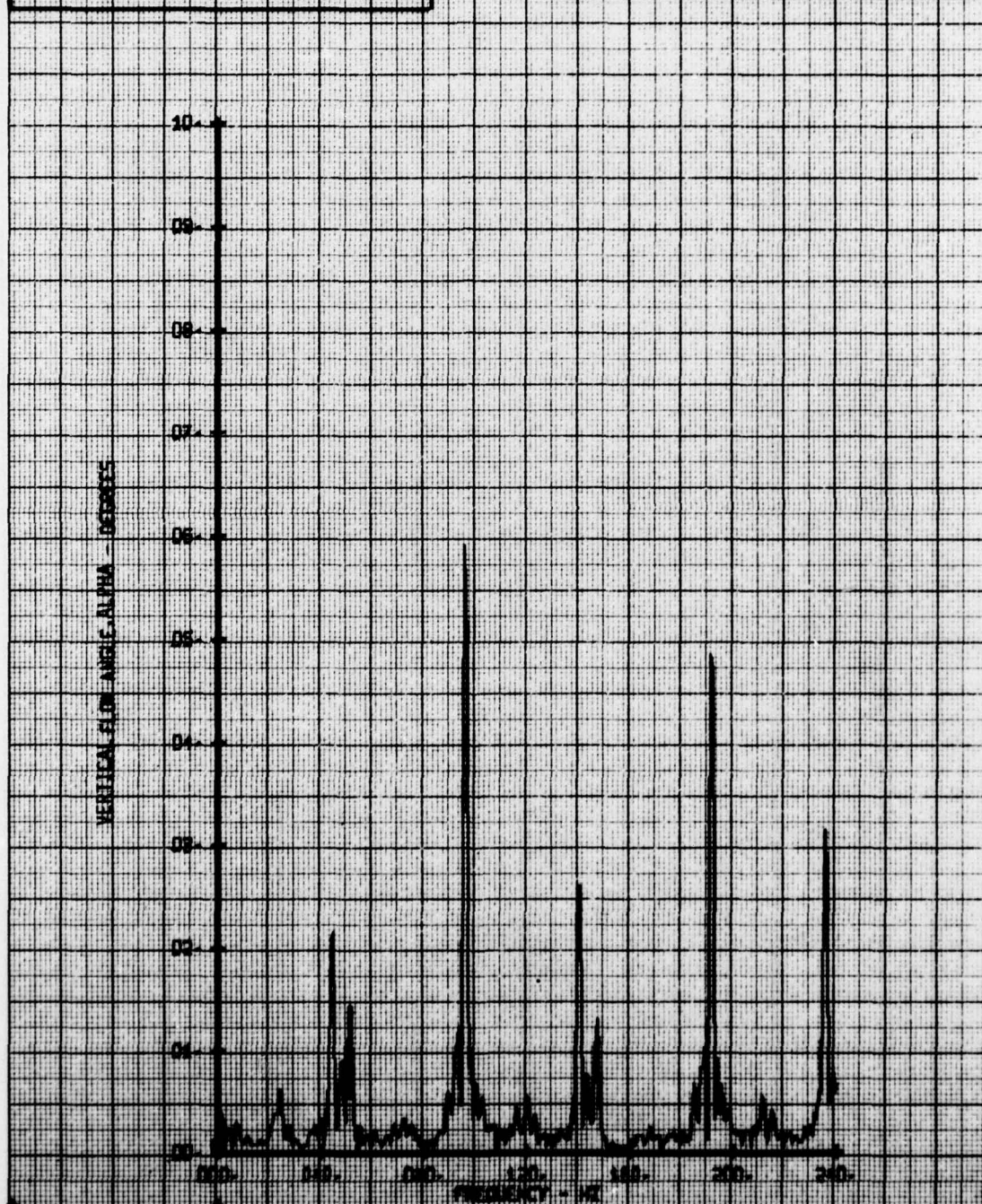
LEGEND
CH 66
PARAMETER
ALPHA

VERTICAL FLOW ANGLE ALPHA - DEGREES



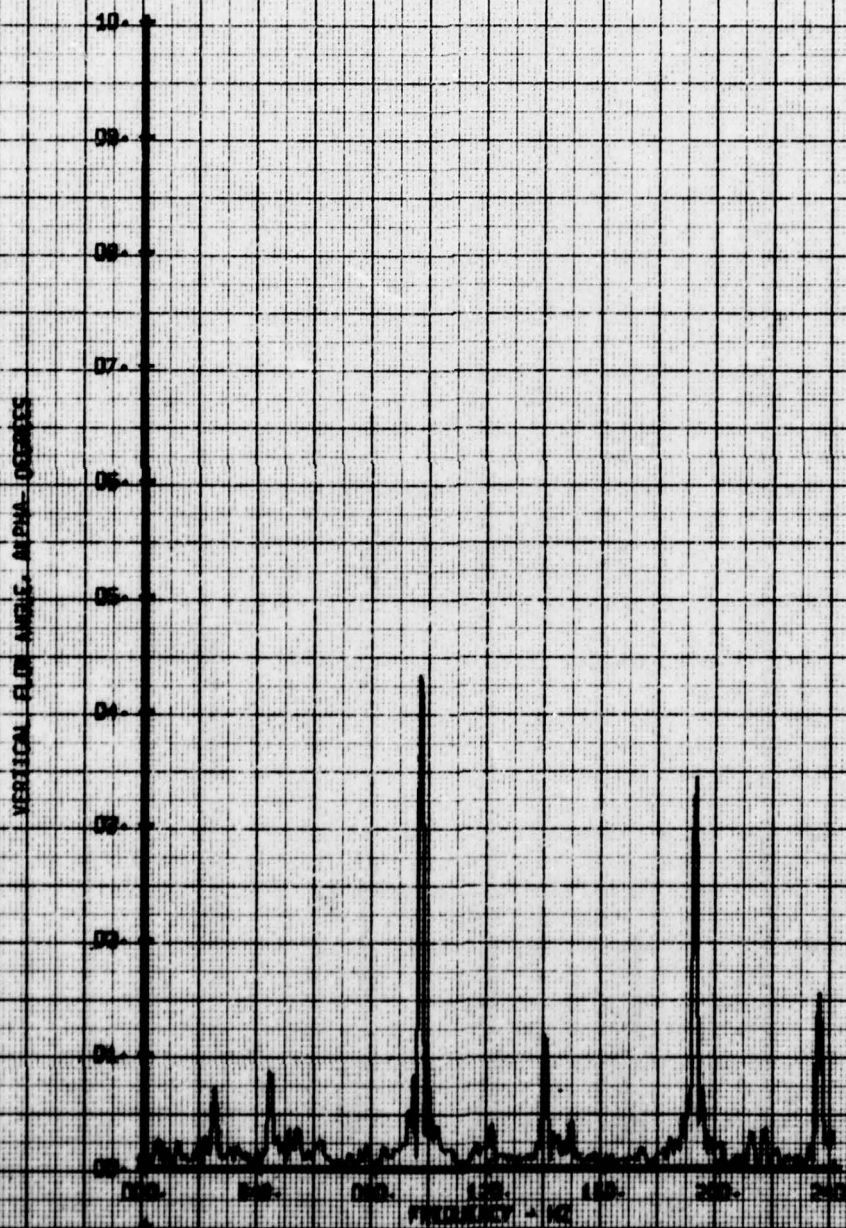
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BASE CONFIG. TRAVERSE THROUGH VORTEX
RUN 113 TP 5

LEGEND
CH PARAMETER
66 ALPHA



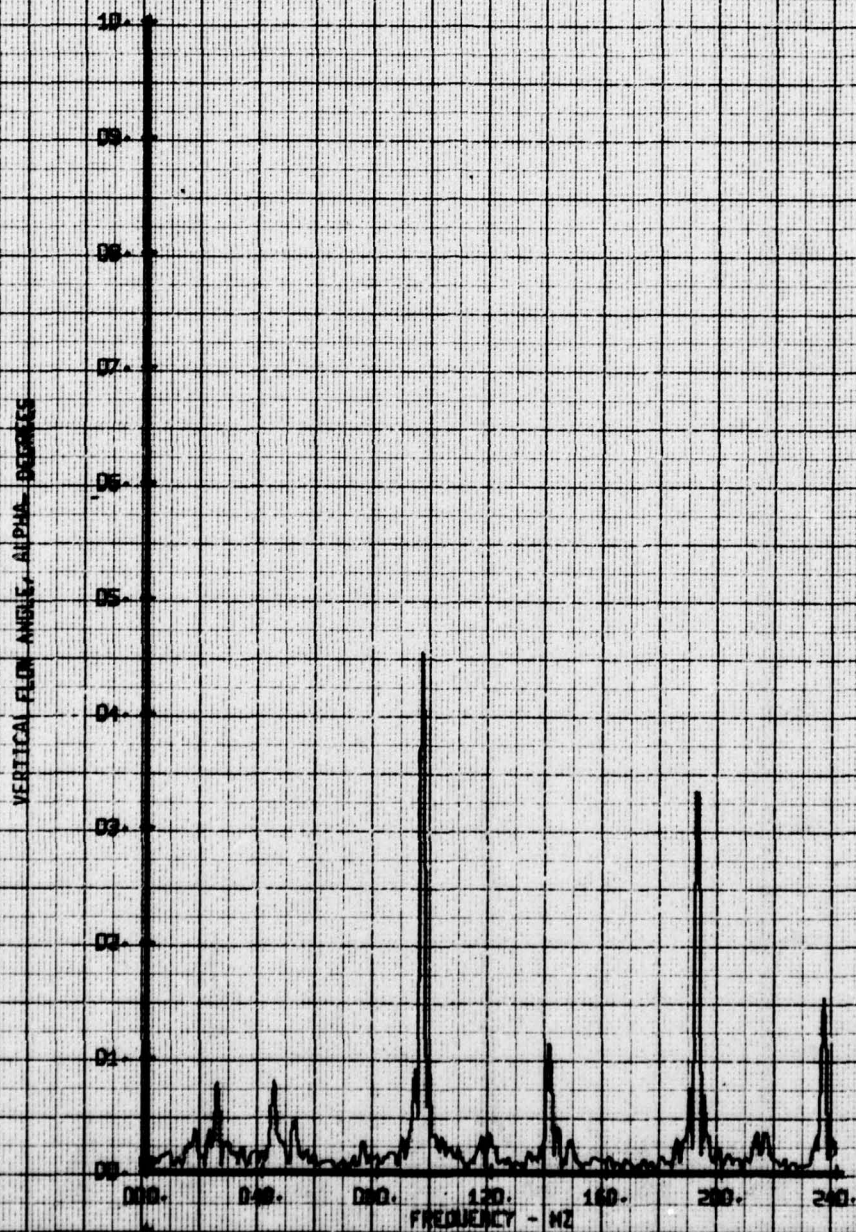
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 BASE CONFIG. TRAVERSE THROUGH VORTEX
 RUN 113 TP B

LEGEND
 CH PARAMETER
 66 ALPHA



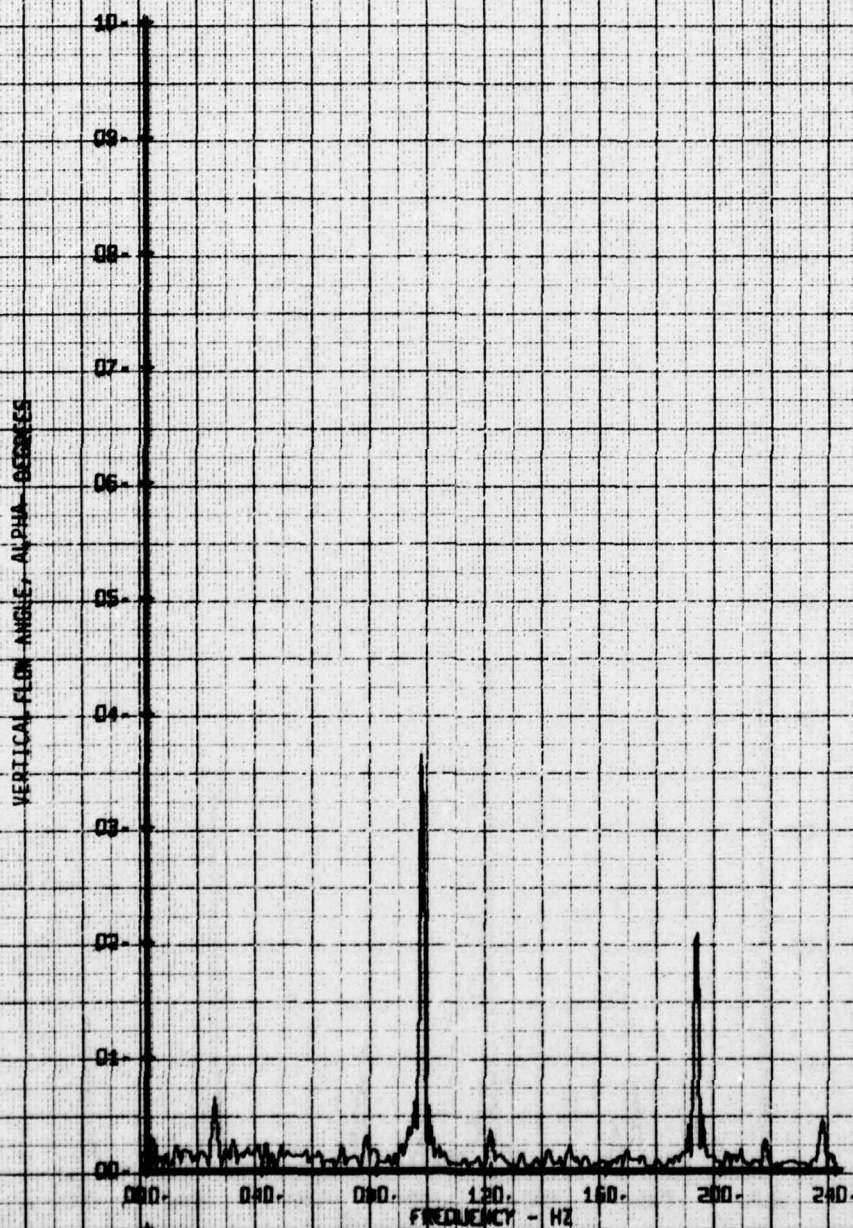
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BASE CONFIG. TRAVERSE THROUGH VORTEX
RUN 113 TP 10

LEGEND
CH PARAMETER
06 ALPHA



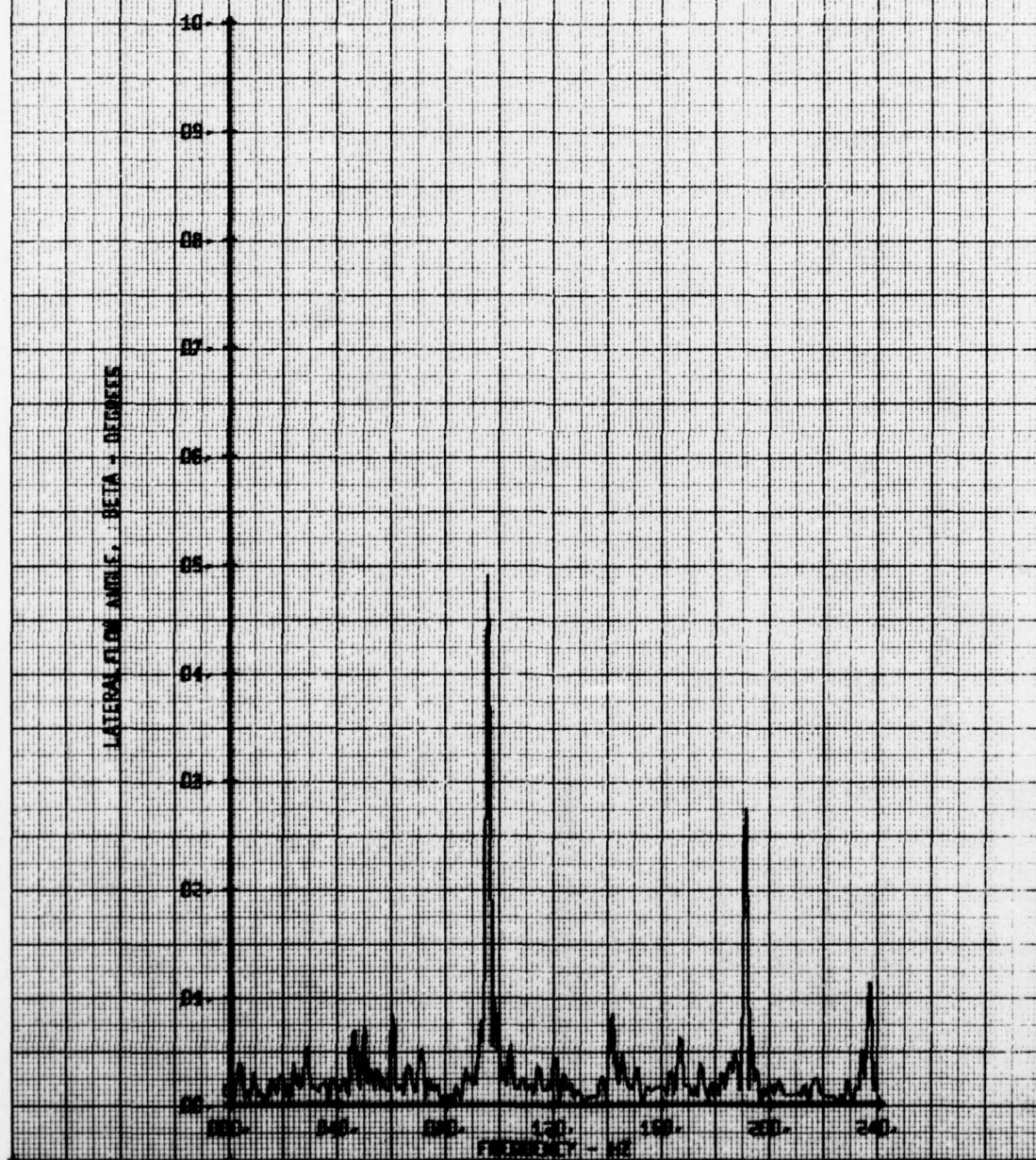
NOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIS. TRAVERSE THROUGH VORTEX
RUN 113 TP 11

LEGEND
CH PARAMETER
66 ALPHA



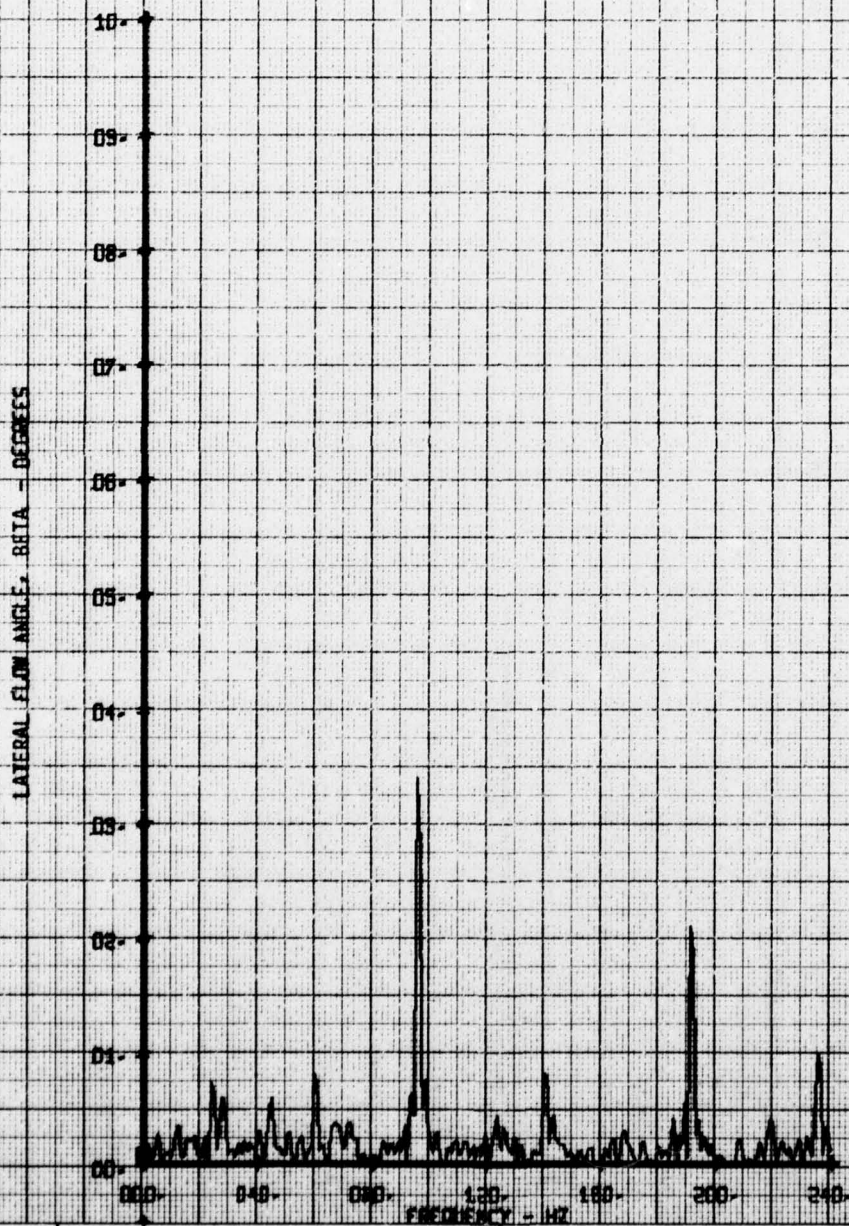
HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE THROUGH VORTEX
RON 113 TP 2

LEGEND
CH 65
PARAMETER
BETA



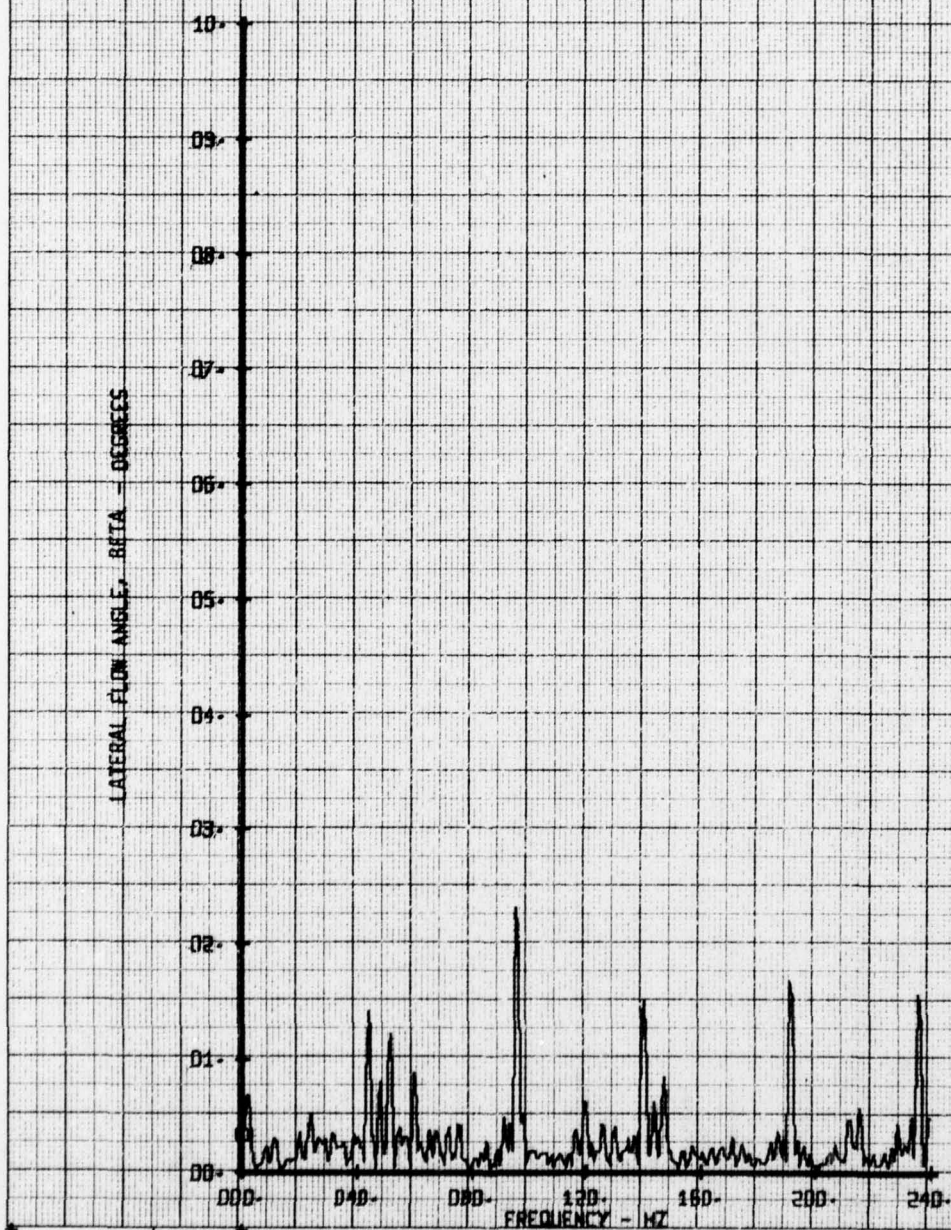
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BASE CONFIG. TRAVERSE THROUGH VORTEX
RUN 113 TP 4

LEGEND
CH. PARAMETER
65 BETA



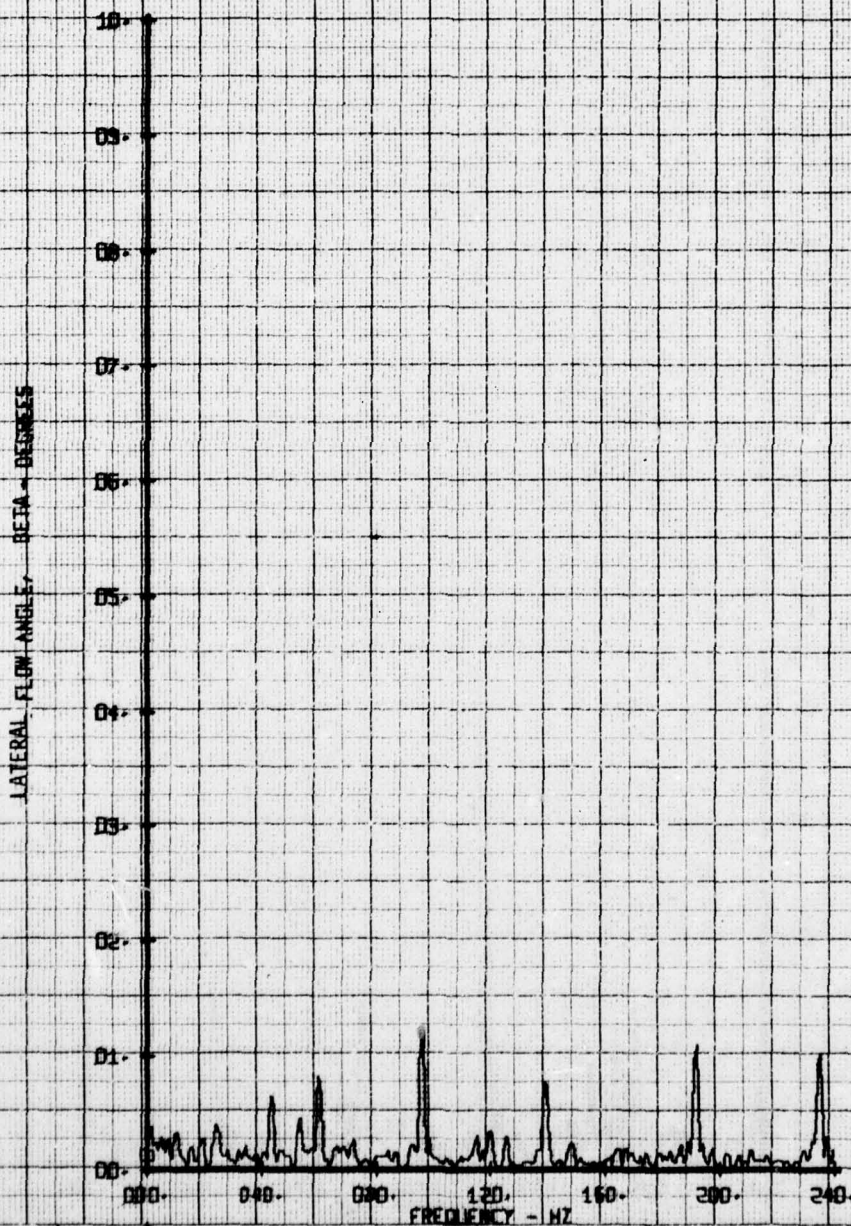
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BASE CONFIG. TRAVERSE THROUGH VORTEX
RUN 113 TP 5

LEGEND
CH PARAMETER
65 BETA



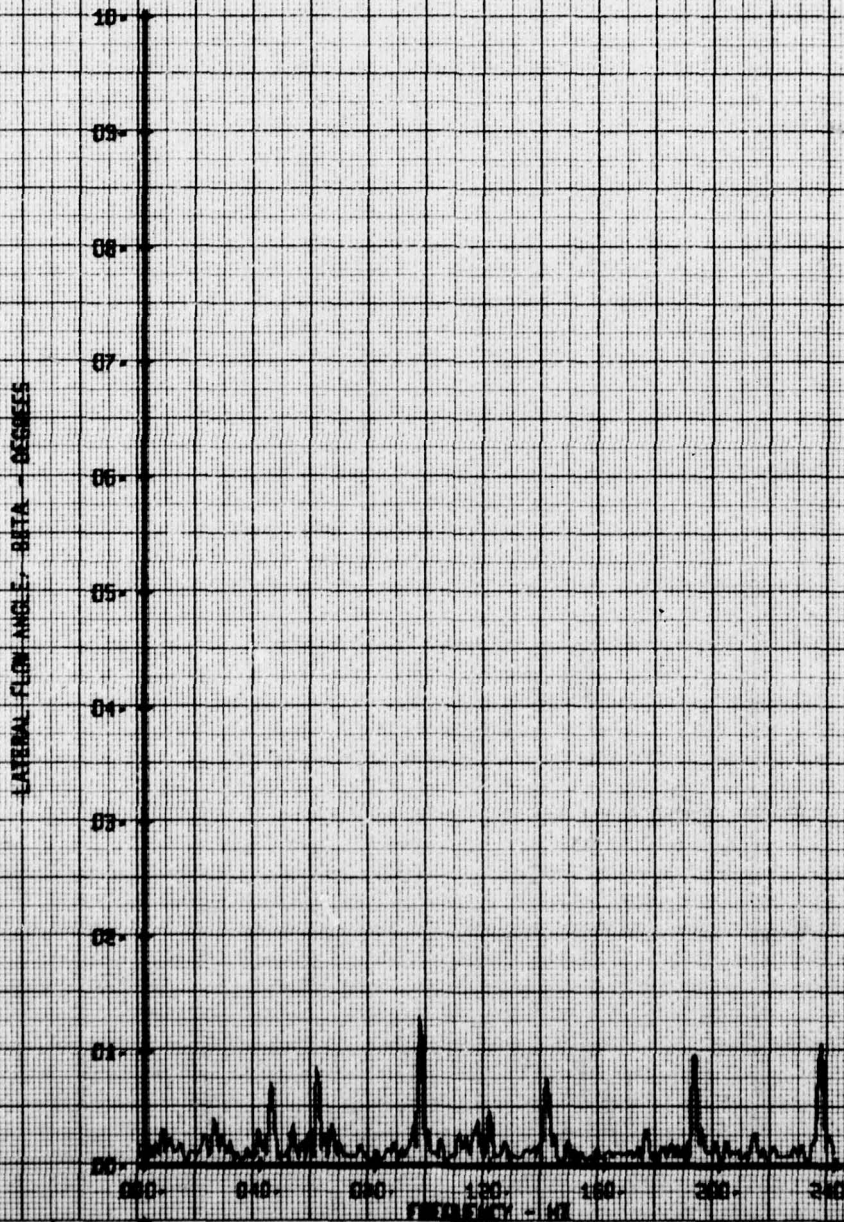
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE THROUGH VORTEX
RUN 113 TP 8

LEGEND
CH PARAMETER
65 BETA



HOT FILM WAKE FREQUENCY ANALYSIS
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RUN 113 TP 10

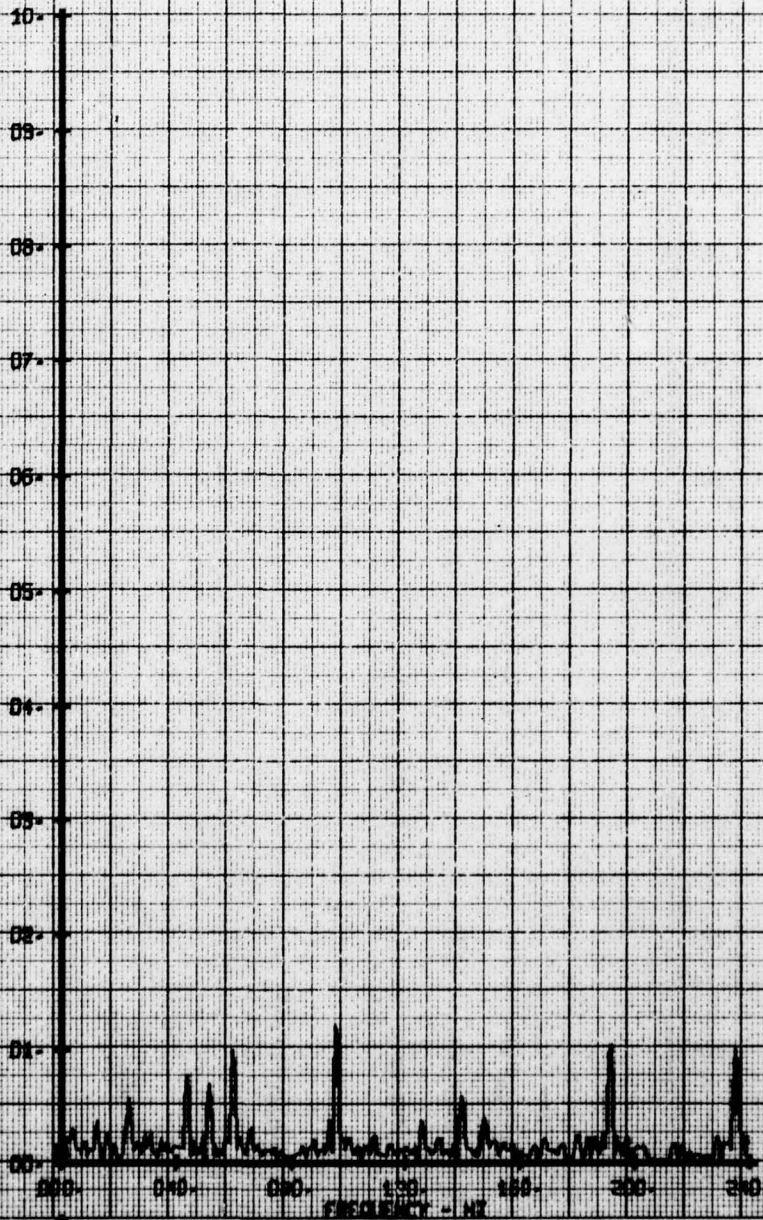
LEGEND
CH PARAMETER
65 BETA



NOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE THROUGH VORTEX
RUN 113 TP 11

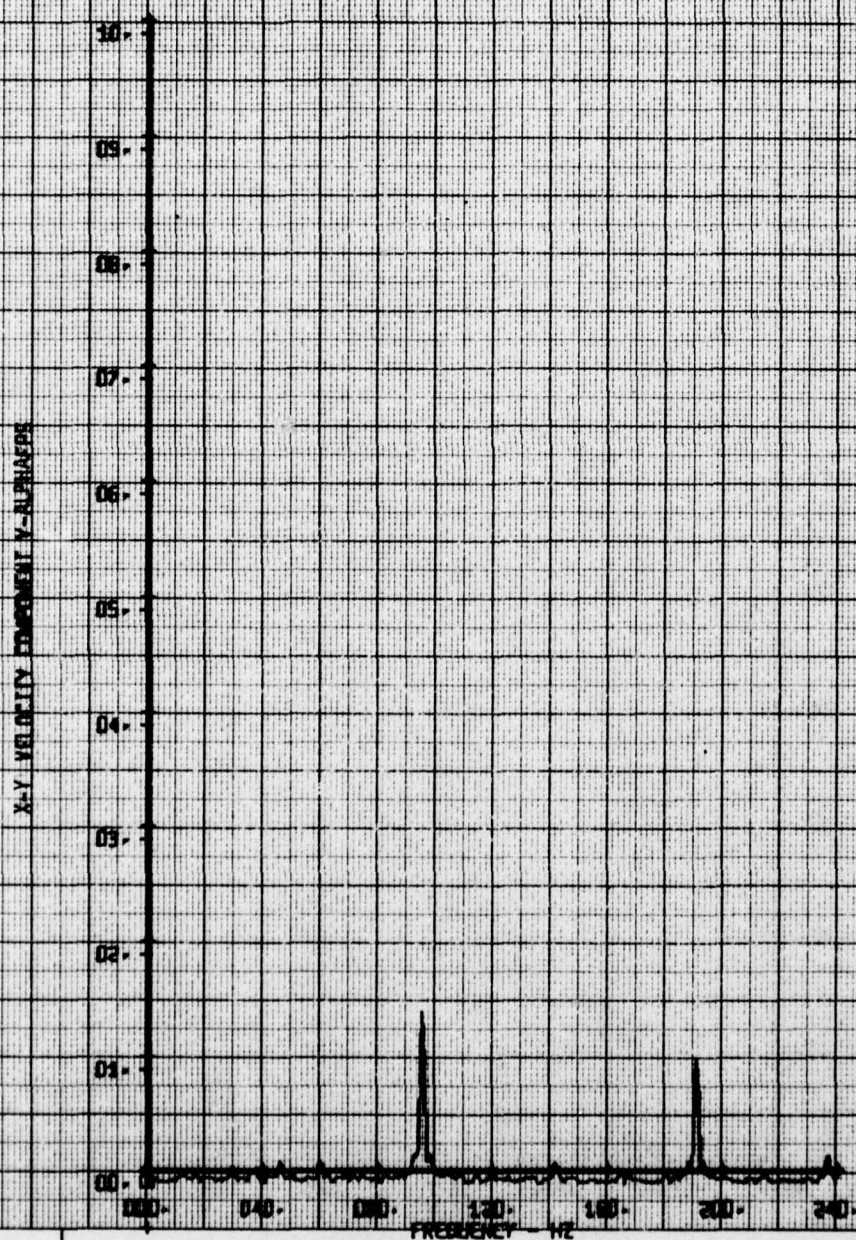
LEGEND
CH PARAMETER
65 BETA

LATERAL FLUX ANGLE, BETA DEGREES



NOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE THROUGH VORTEX
RUN 113 1P 2

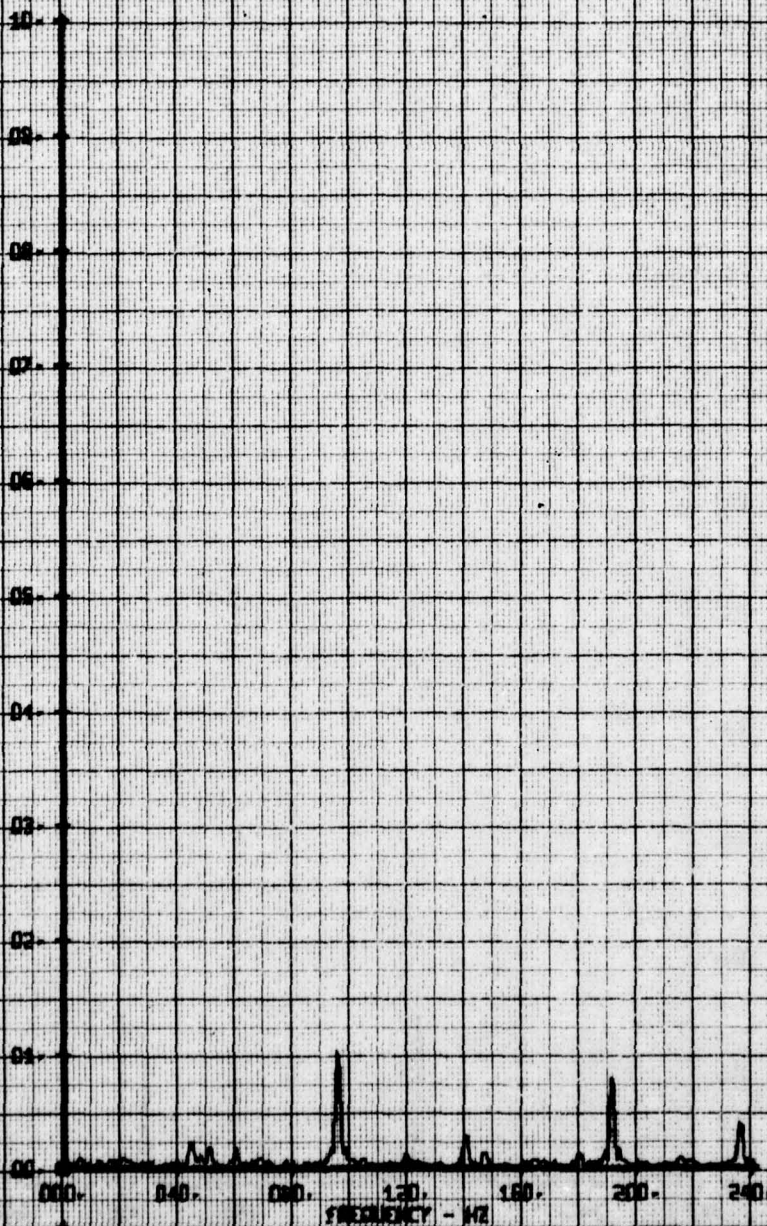
LEGEND
CH PARAMETER
SS V-ALPHA



HOT FILM WIRE FREQUENCY ANALYSIS
BASE CONV'G. TRAVERSE THROUGH VORTEX
RUN 143 TP 4

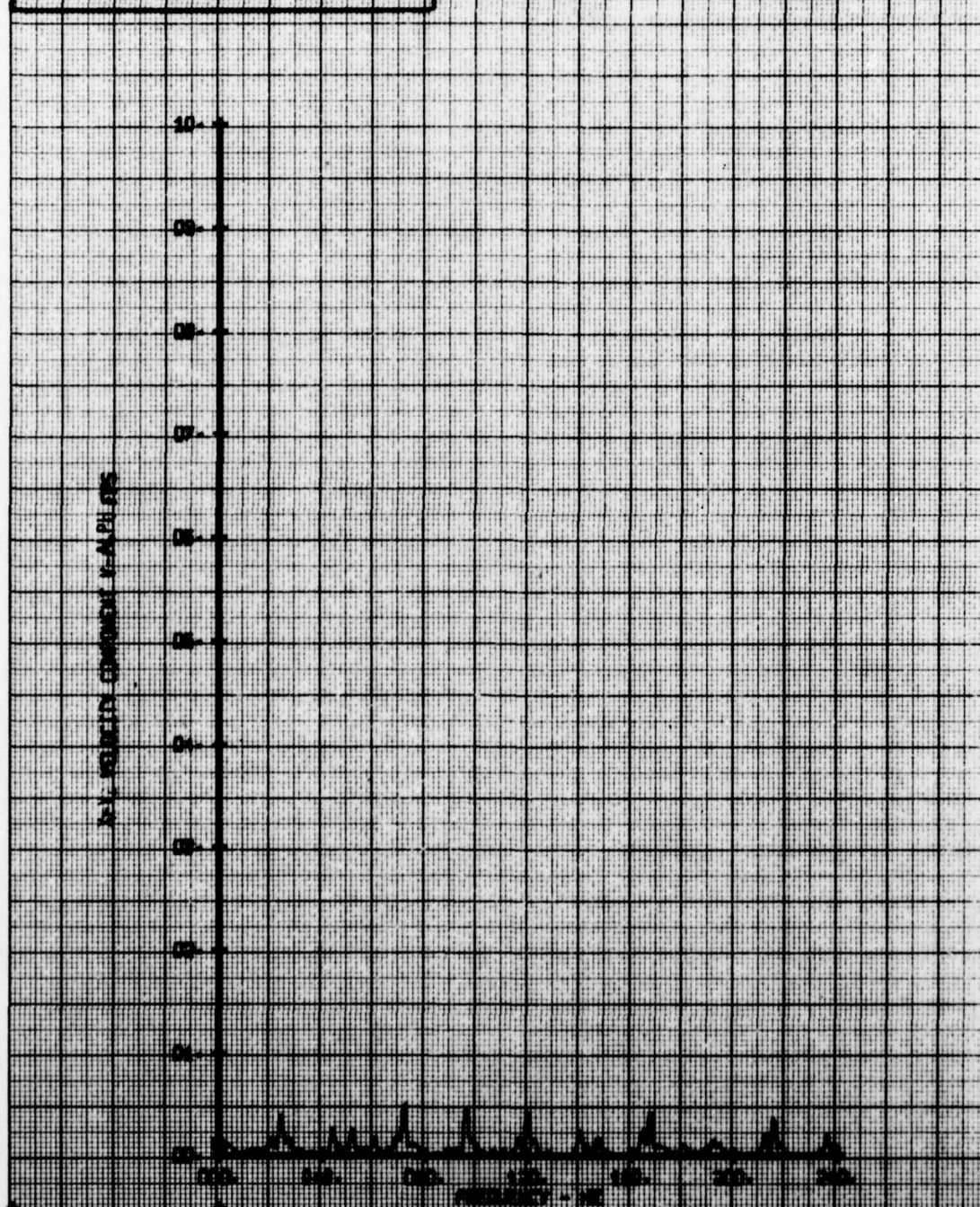
LEGEND
CH. PARAMETER
66 V-ALPHA

V-V VELOCITY COMPONENT V-ALPHA



NOT FILM WIRE FREQUENCY ANALYSIS
 BASE CONFIG- TRAVERSE THROUGH VORTEN
 RUN 113 TP 5

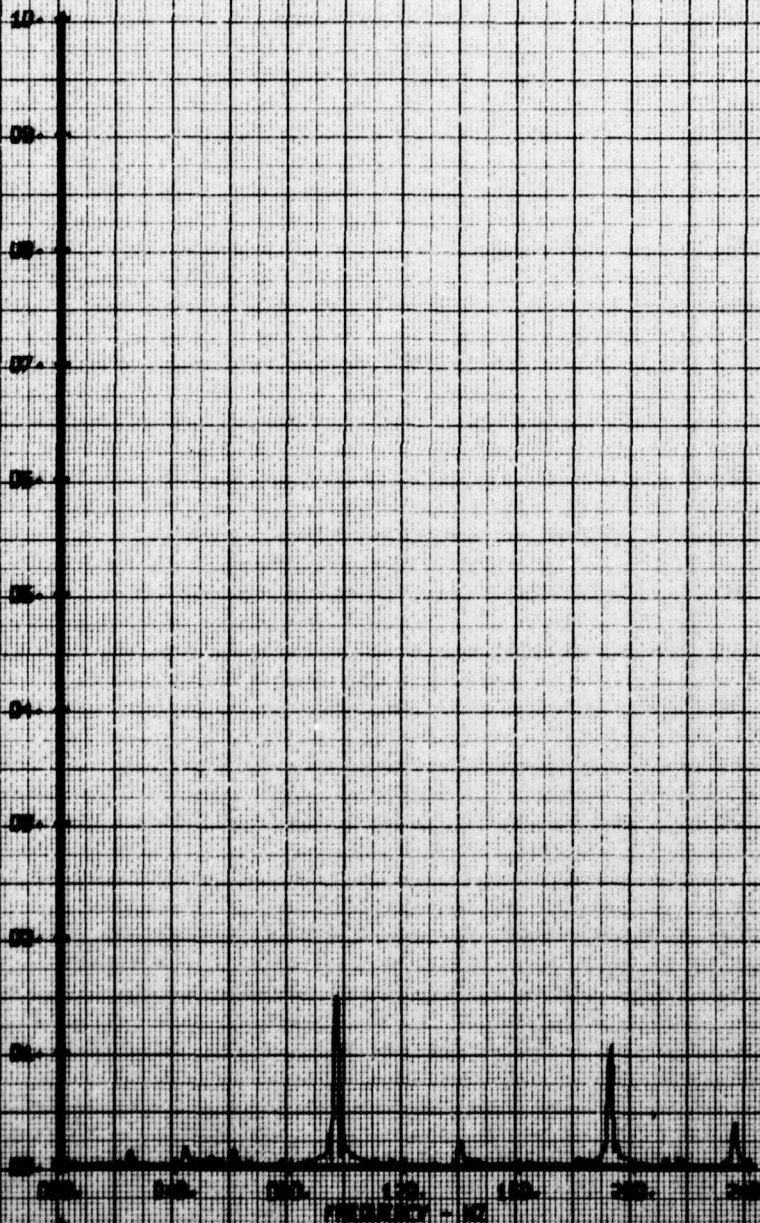
LEGEND
 CM PARAMETER
 05 V-ALPHA



HOT FILM WAVE FREQUENCY ANALYSIS
 BASE CONFIG- TRAVERSE THROUGH VORTEX
 RUN 113 TP 9

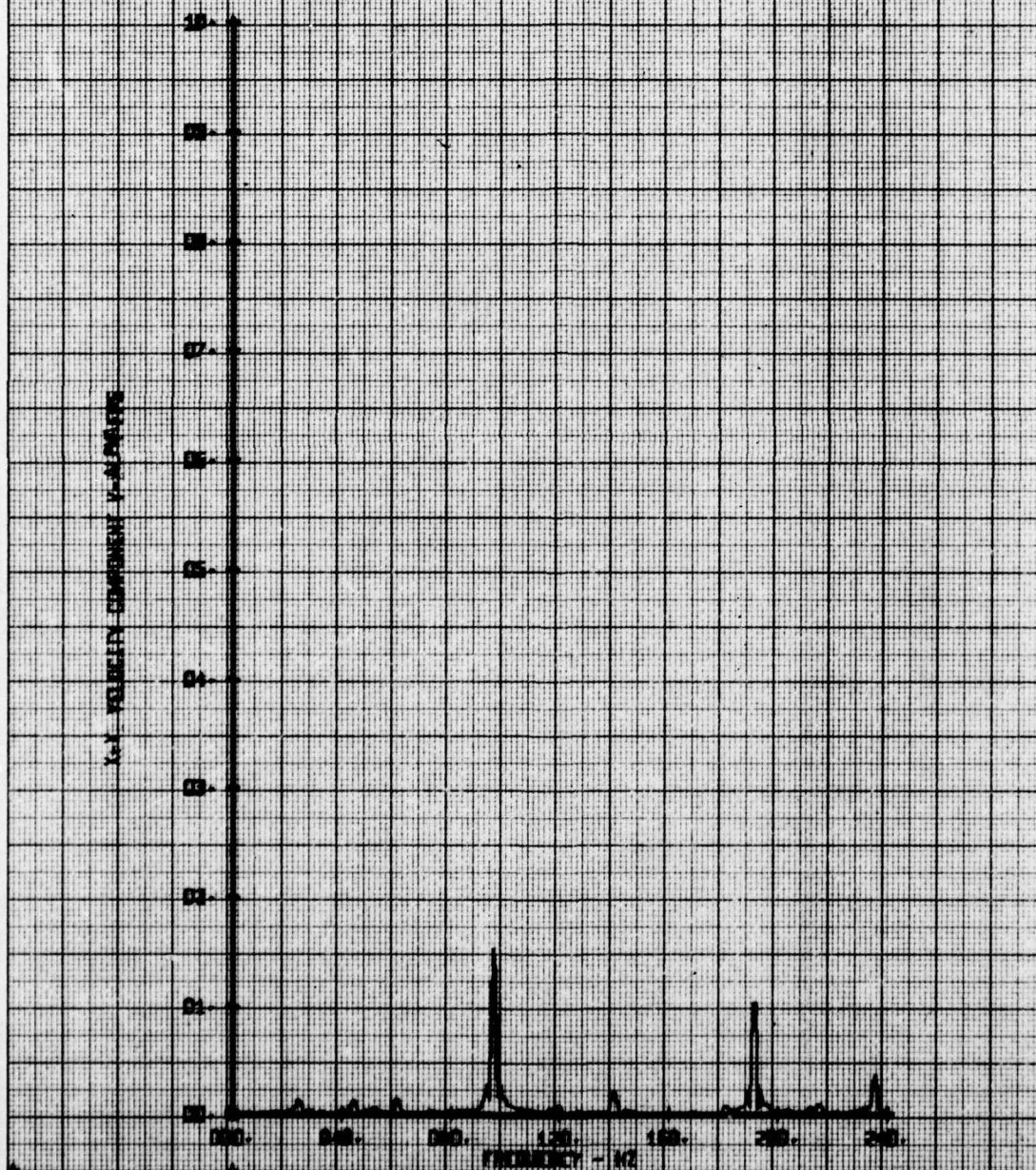
LEGEND
 CH PARAMETER
 66 V-ALPHA

V-V. VORTEX COMPONENT V-ALPHA



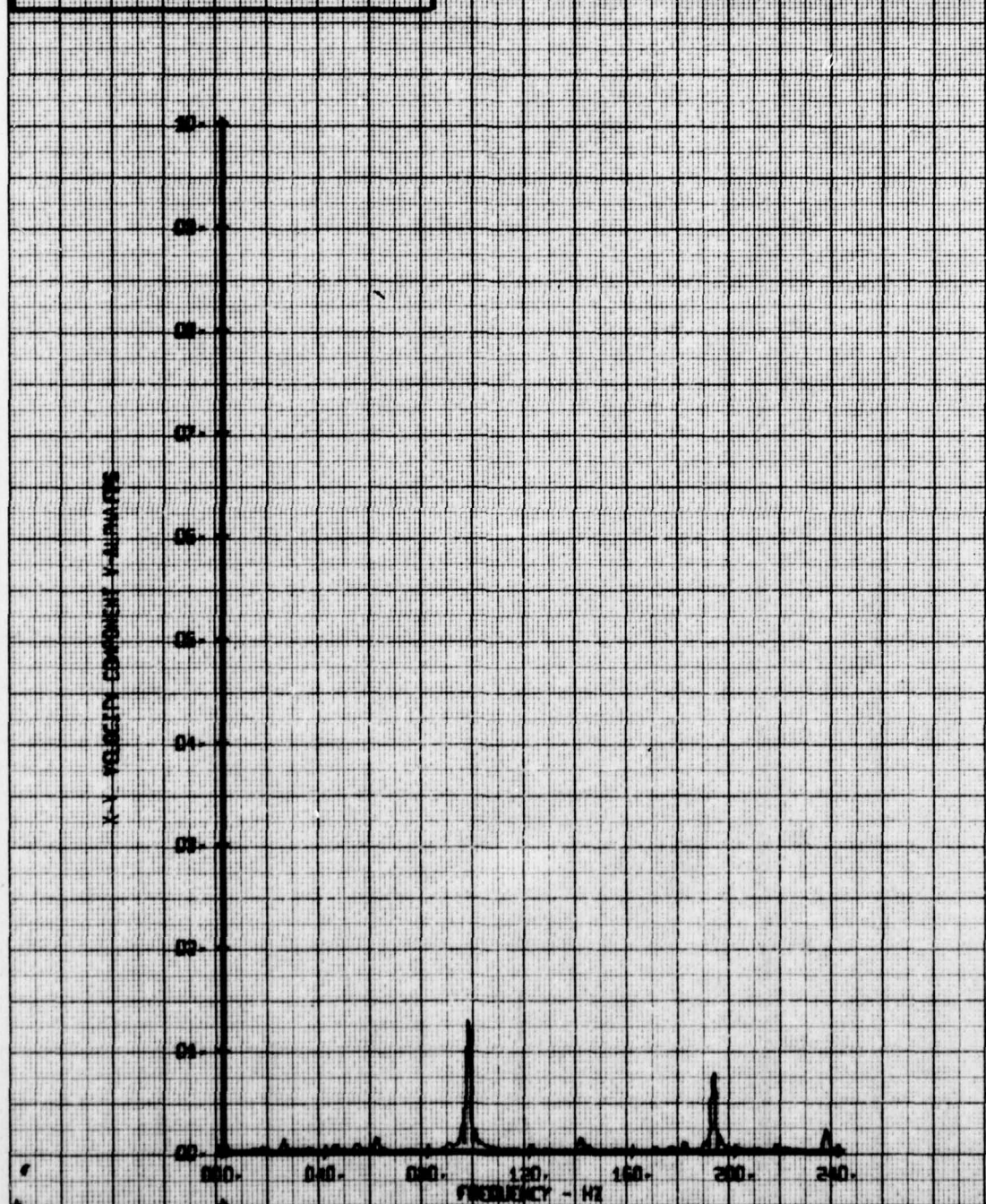
HOT FILM WAVE FREQUENCY ANALYSIS
 BASE CONFIG: TRAVERSE THROUGH VORTEX
 RUN 113 TP 10

LEGEND
 CH PARAMETER
 06 V-REPR



NOT FILM WAVE FREQUENCY ANALYSIS
 BASE CONFIG: TRANSVERSE THROUGH VORTICE
 RUN 113 TP 11

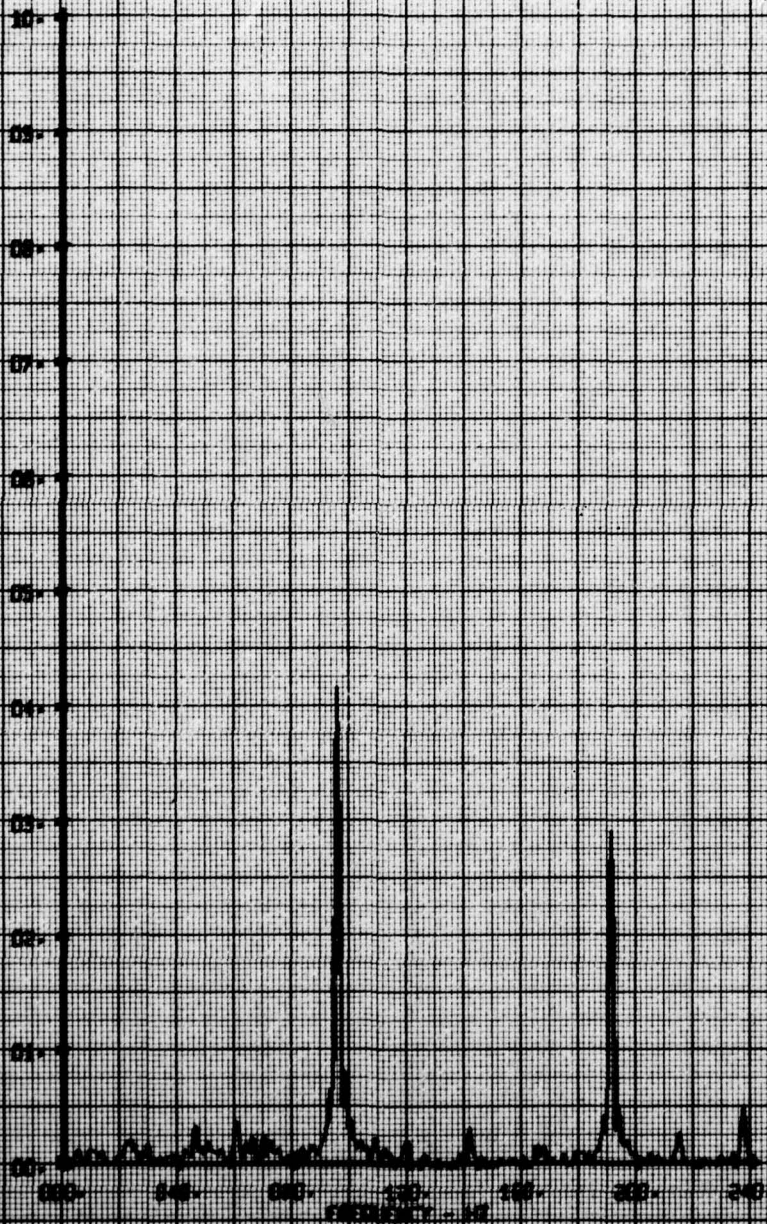
LEGEND
 CH PARAMETER
 00 V-ALPHA



NOT FILM WIRE FREQUENCY ANALYSIS
 BASE CONTOUR: TRANSVERSE THROUGH WORTER
 RUN 117 IP 2

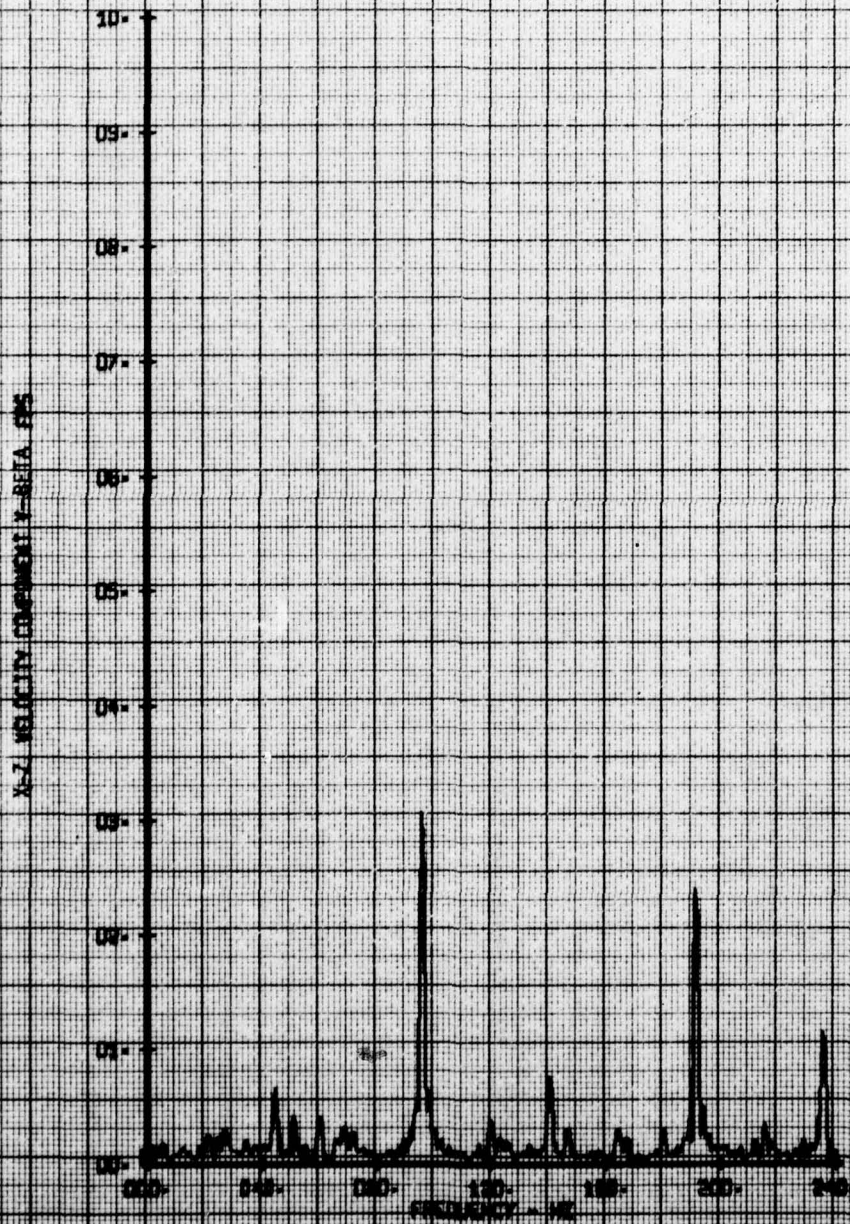
LEGEND
 CH PARAMETER
 65 V-BETA

X-2 VELOCITY COMPONENT V-BETA FPS



NOT FILM WAKE FREQUENCY ANALYSIS
 BASE CONFIG- TRAVERSE THROUGH VORTEX
 RUN 113 TP 4

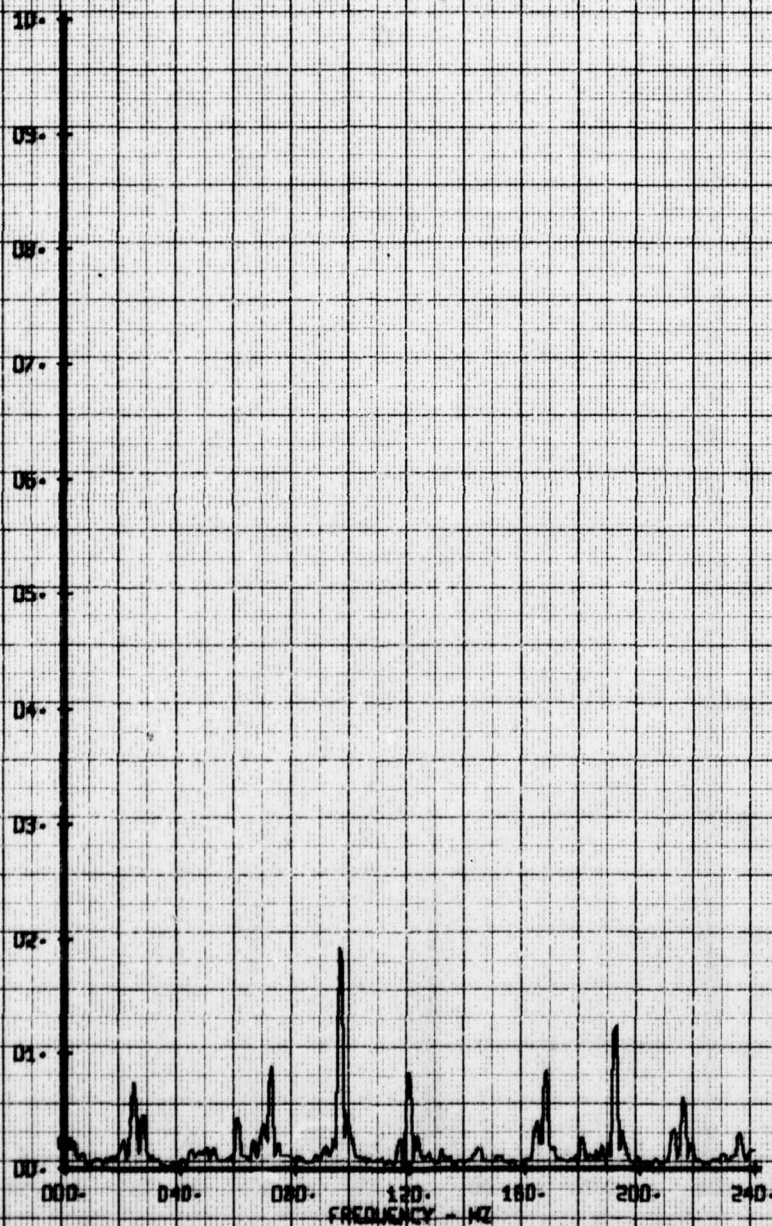
LEGEND
 CH PARAMETER
 65 V-BETA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG- TRAVERSE THROUGH VORTEX
RUN 113 TP 6

LEGEND
CH PARAMETER
65 V-BETA

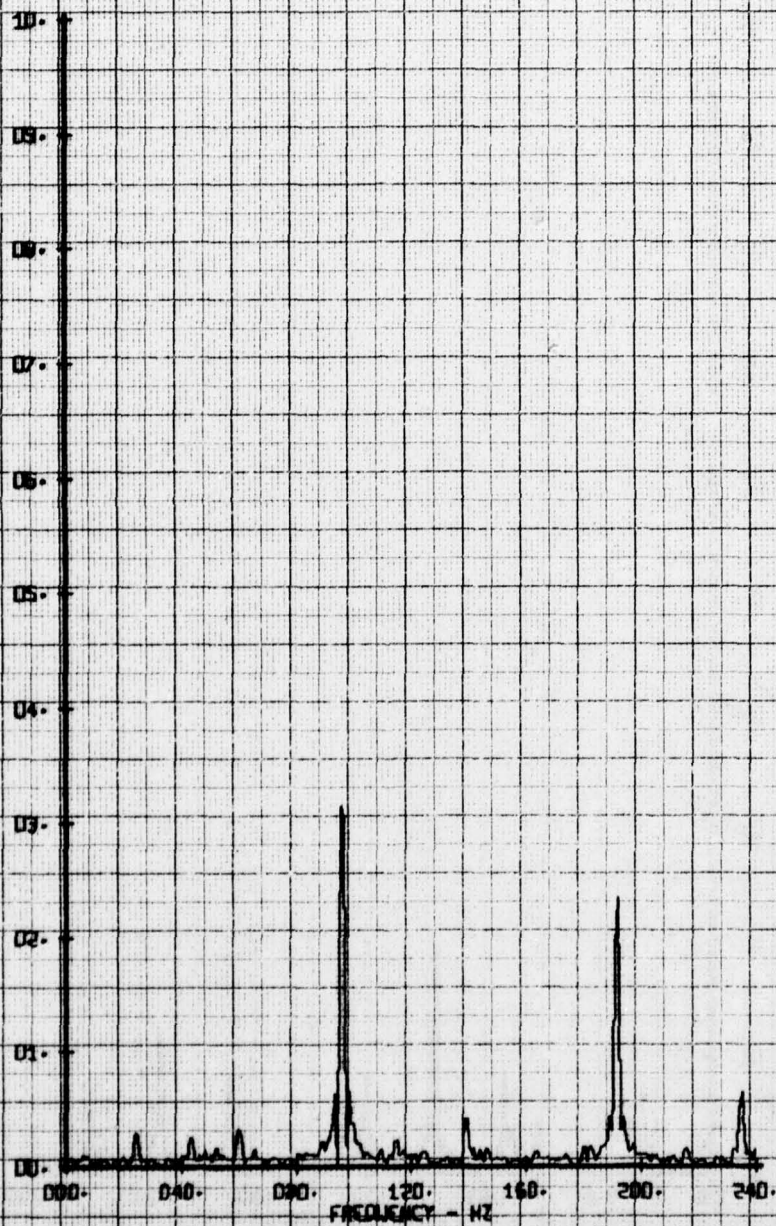
X-Z VELOCITY COMPONENT V-BETA-SPS



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG- TRAVERSE THROUGH VORTEX
RUN 113 TP 8

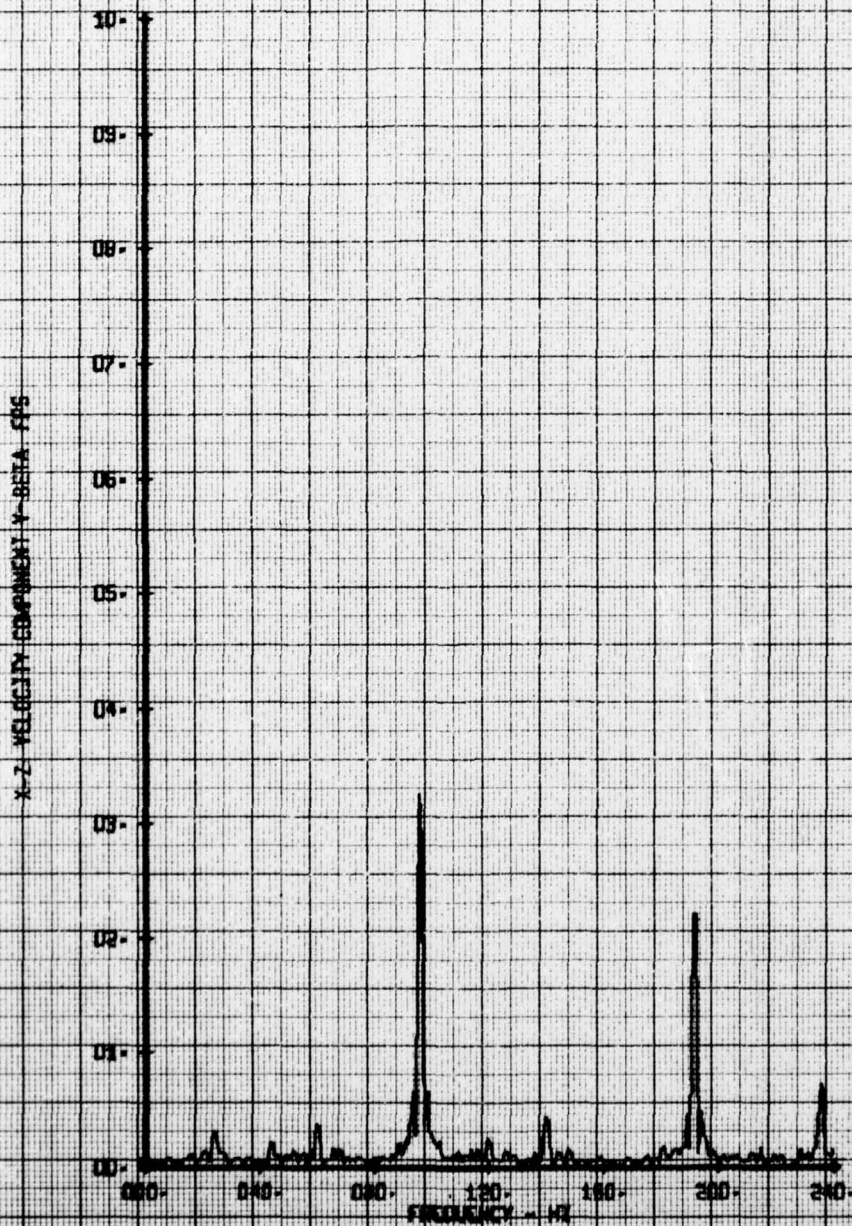
LEGEND
CH PARAMETER
65 V-BETA

X-Z VELOCITY COMPONENT V-BETA RMS



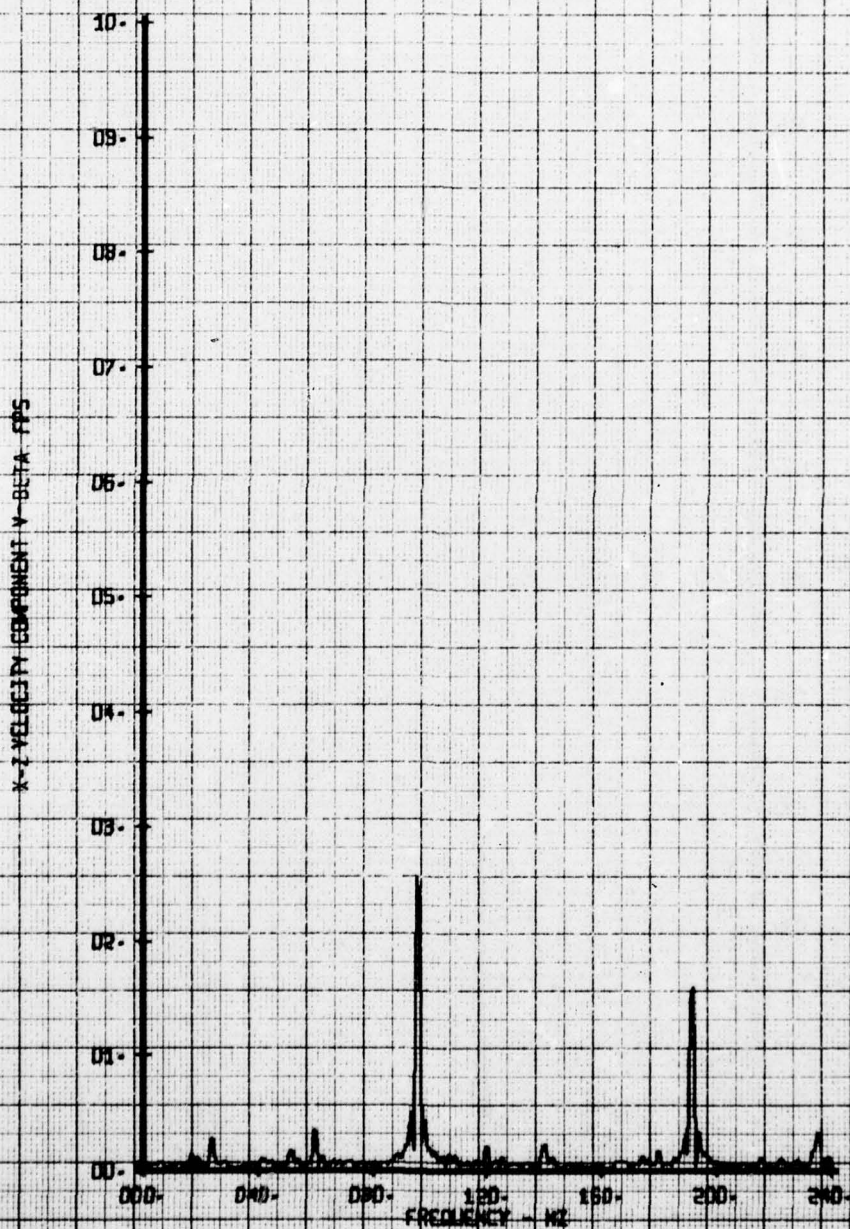
NOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE THROUGH VORTEX
RUN 113 TP 1D

LEGEND
CH PARAMETER
65 V-BETA



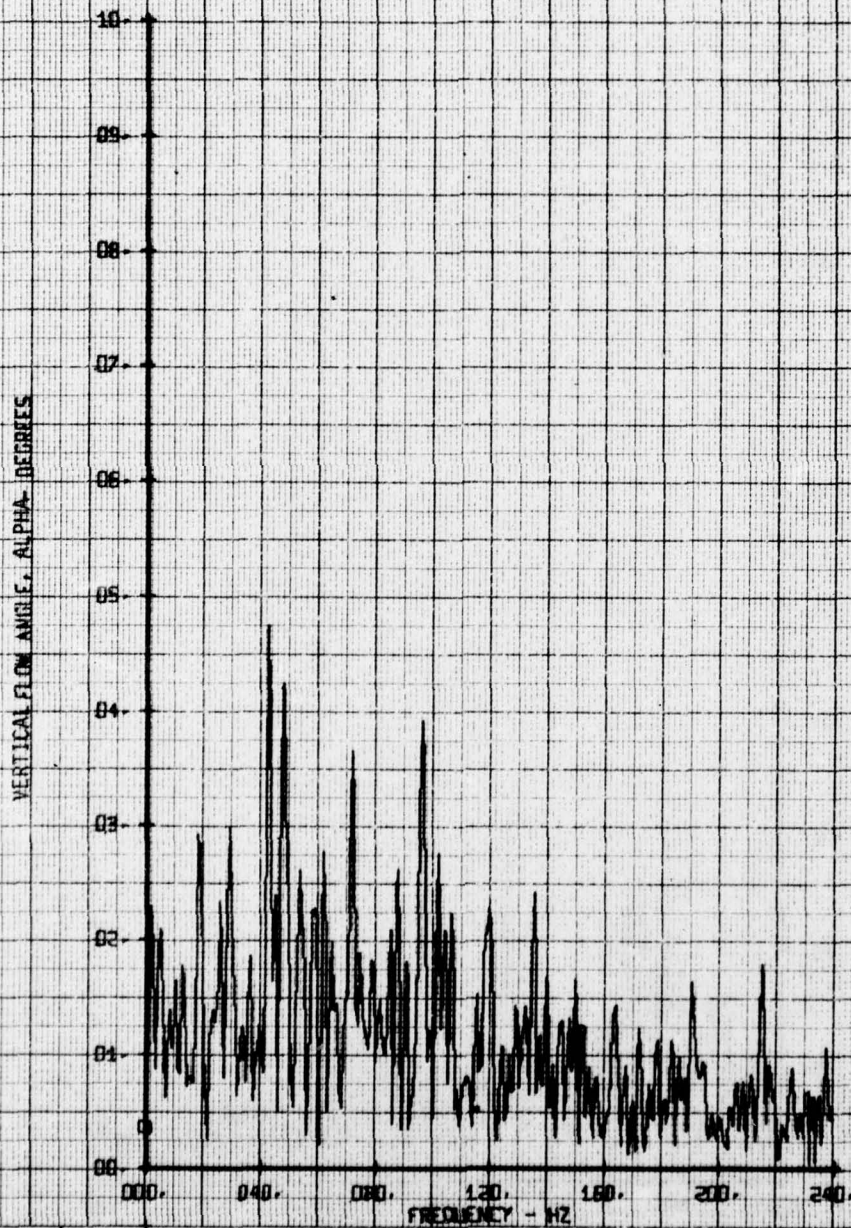
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE THROUGH VORTEX
RUN 113 TP 11

LEGEND
CH PARAMETER
65 V-BETA



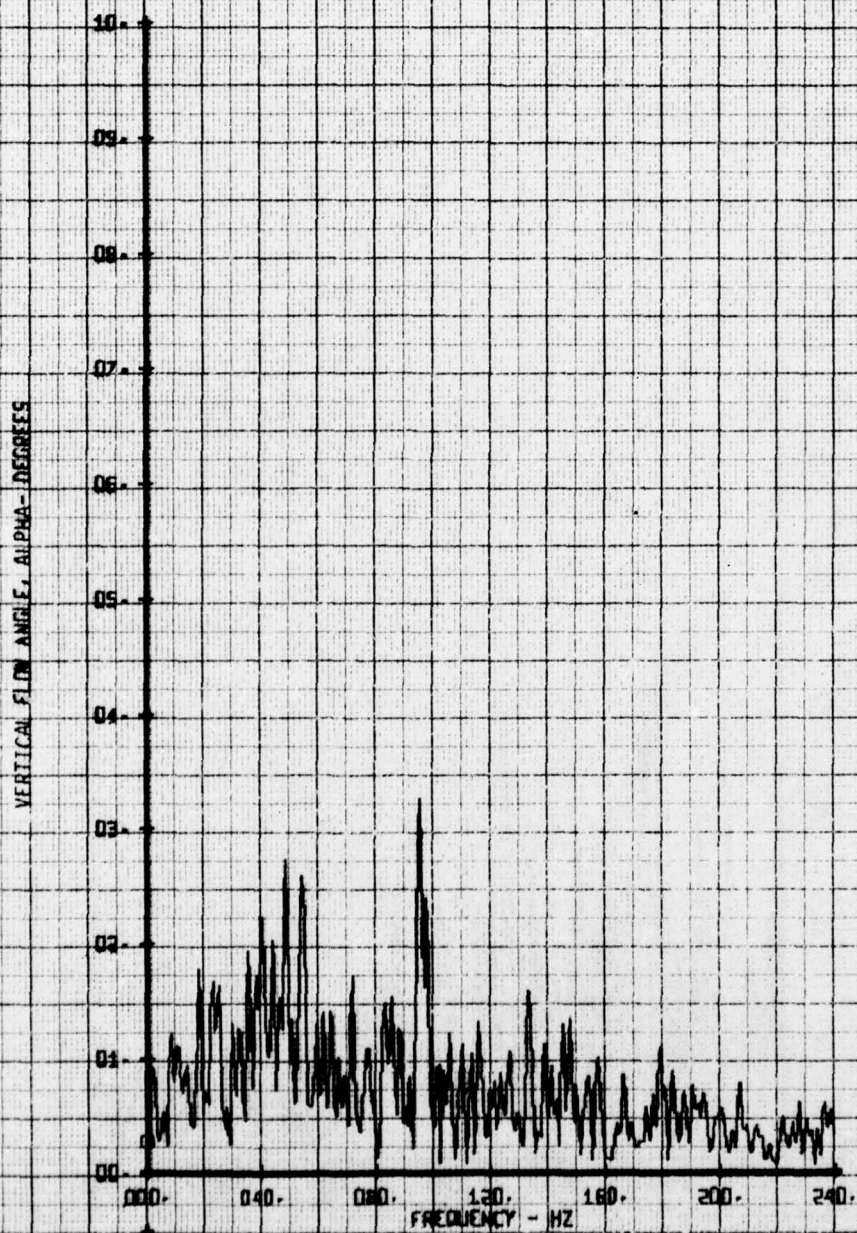
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE ABOVE 1/R C-L.
RUN 114 TP 2

LEGEND
CH PARAMETER
66 ALPHA



HDT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE ABOVE 1/R C.L.
RUN 114 TP 1

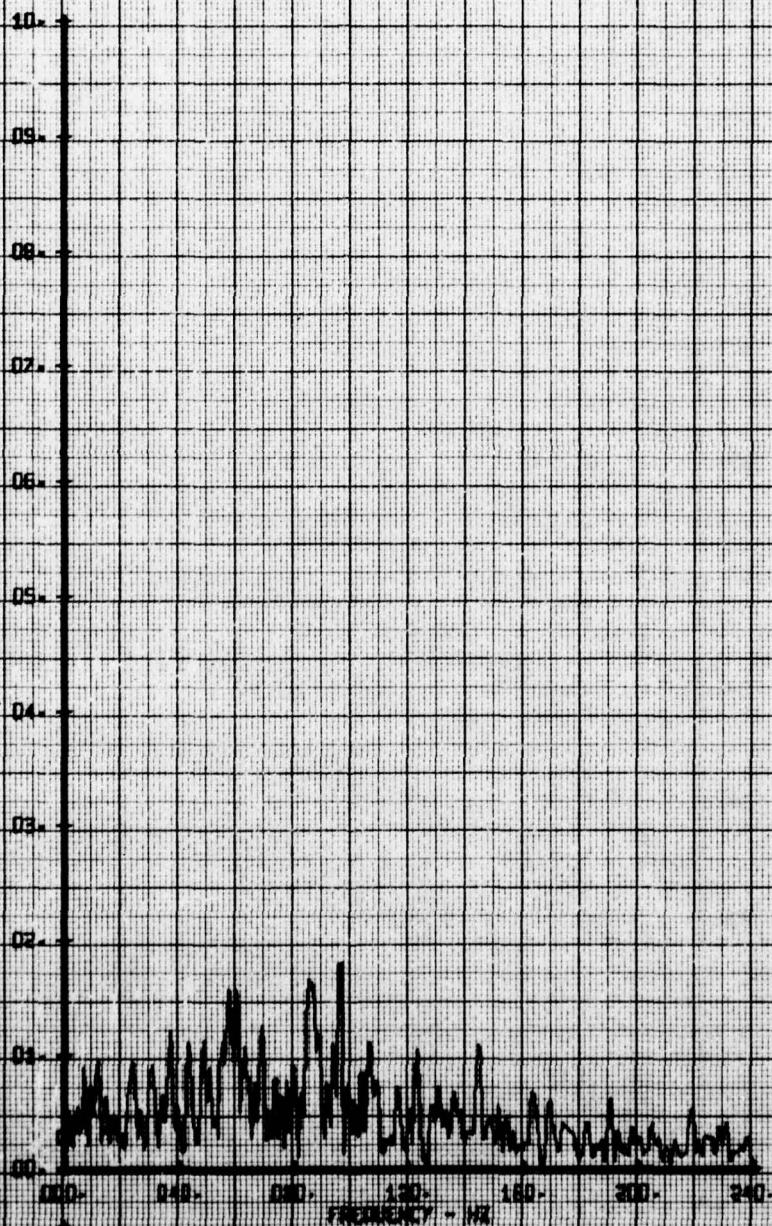
LEGEND
CH PARAMETER
66 ALPHA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE ABOVE T/R C.L.
RUN 114 IP 5

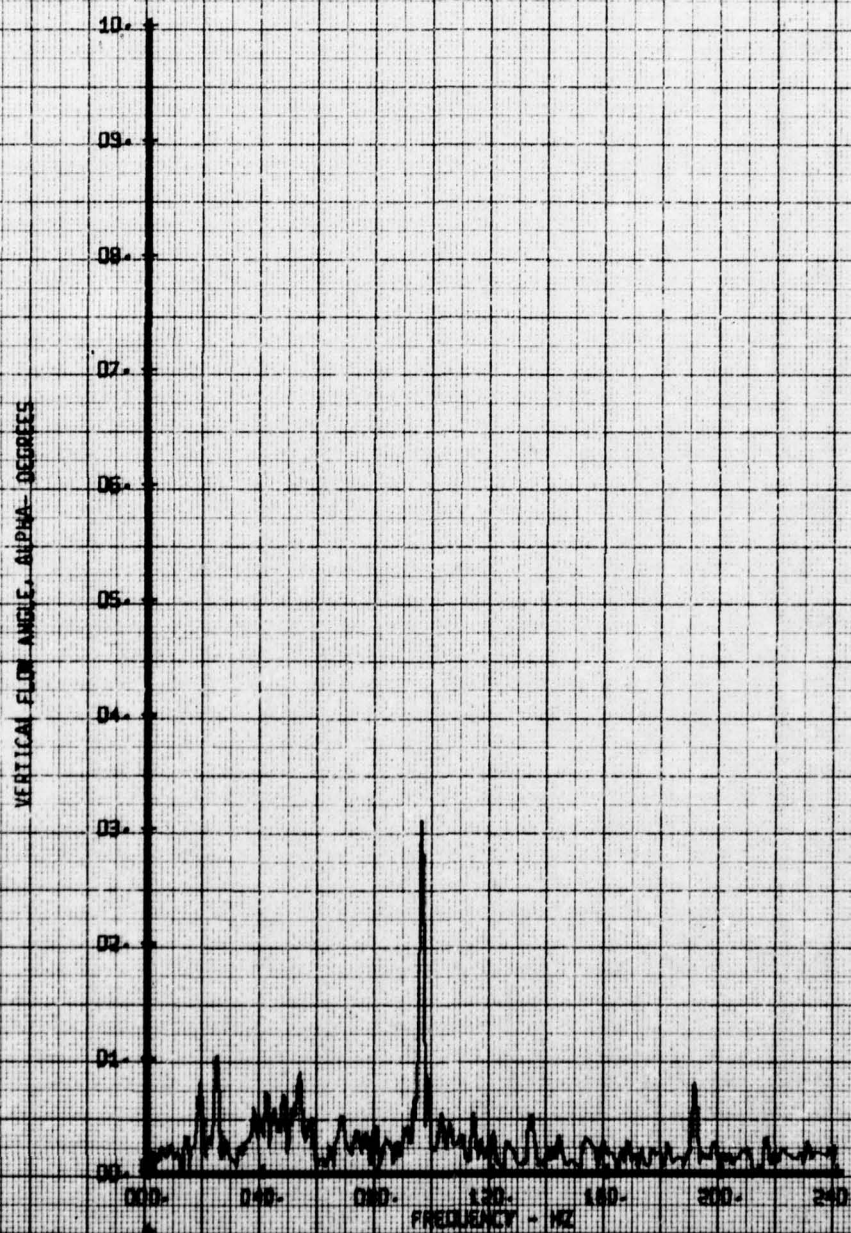
LEGEND
CH PARAMETER
06 ALPHA

VERTICAL FLOW ANGLE, ALPHA - DEGREES



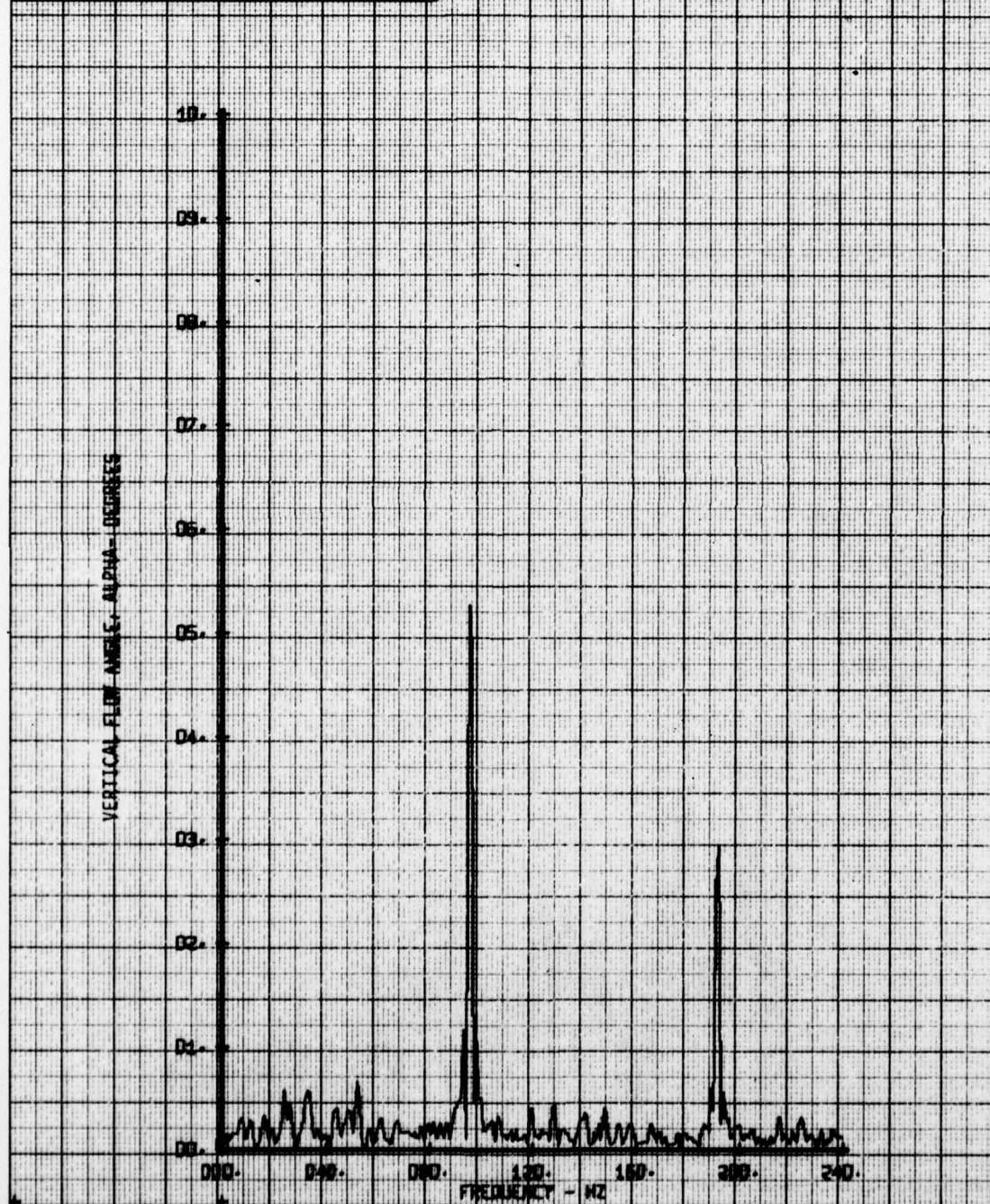
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE ABOVE T/R C.L.
RUN 114 TP 8

LEGEND
CH PARAMETER
66 ALPHA



HOT FILM WAKE FREQUENCY ANALYSIS
 BASE CONFIG. TRANSVERSE ABOVE 1/2 R C-L.
 RUN 114 TP 10

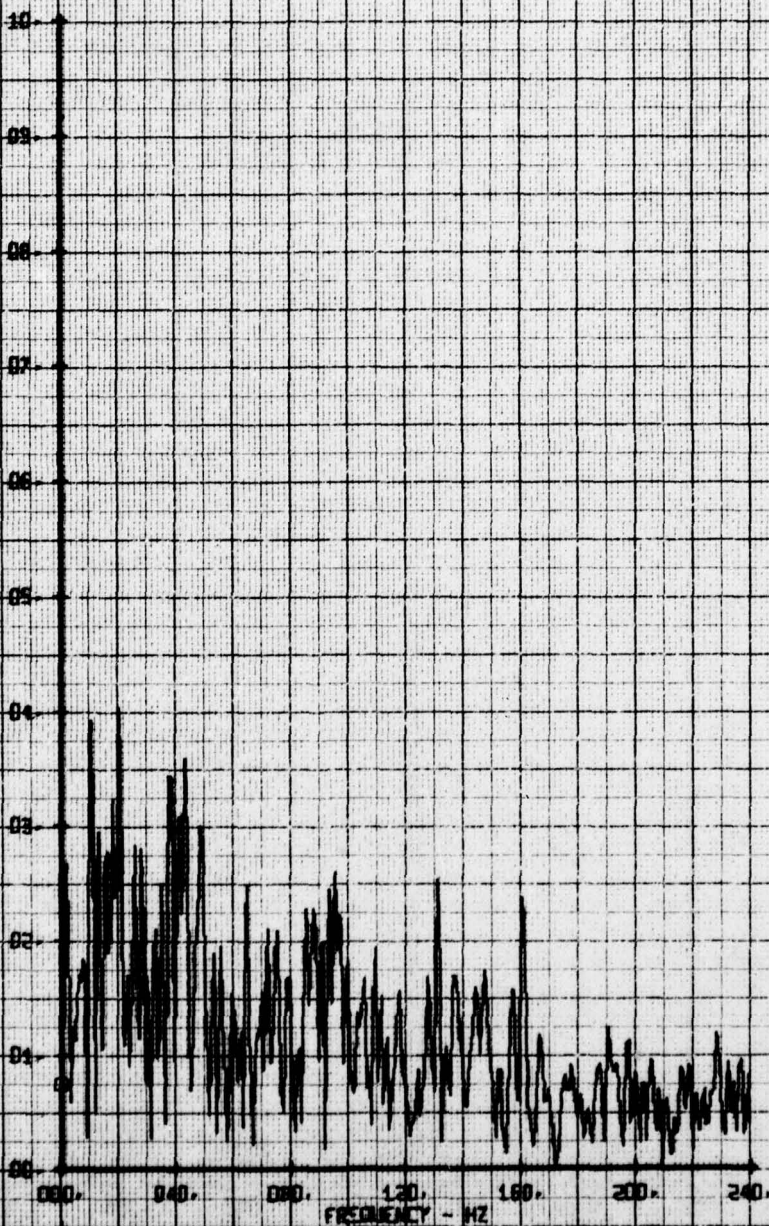
LEGEND
 CH PARAMETER
 BB ALPHA



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE ABOVE 1/R C.L.
RUN 114 IP 2

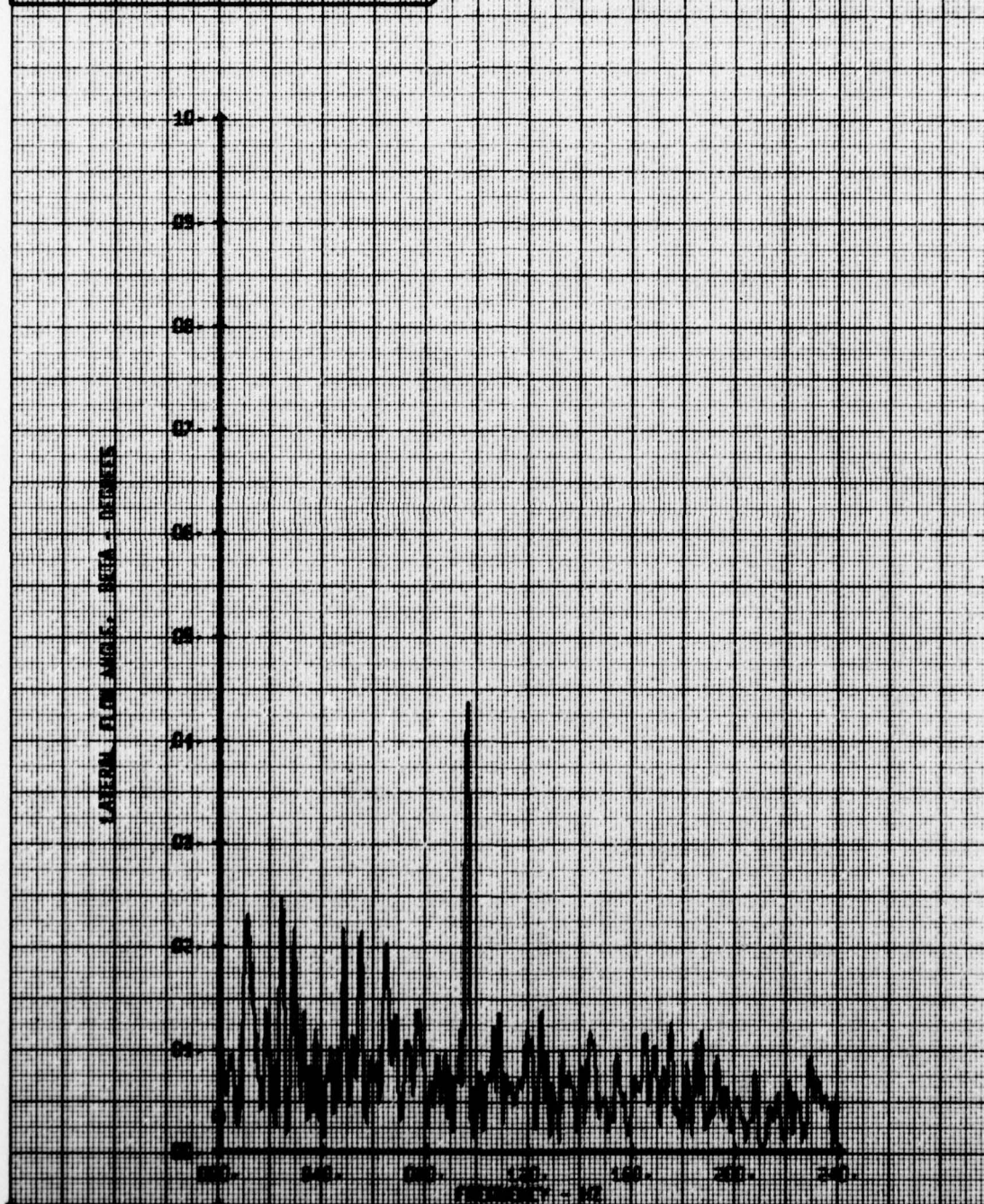
LEGEND
CH PARAMETER
65 BETA

LATERAL FLOW ANGLE, BETA - DEGREES



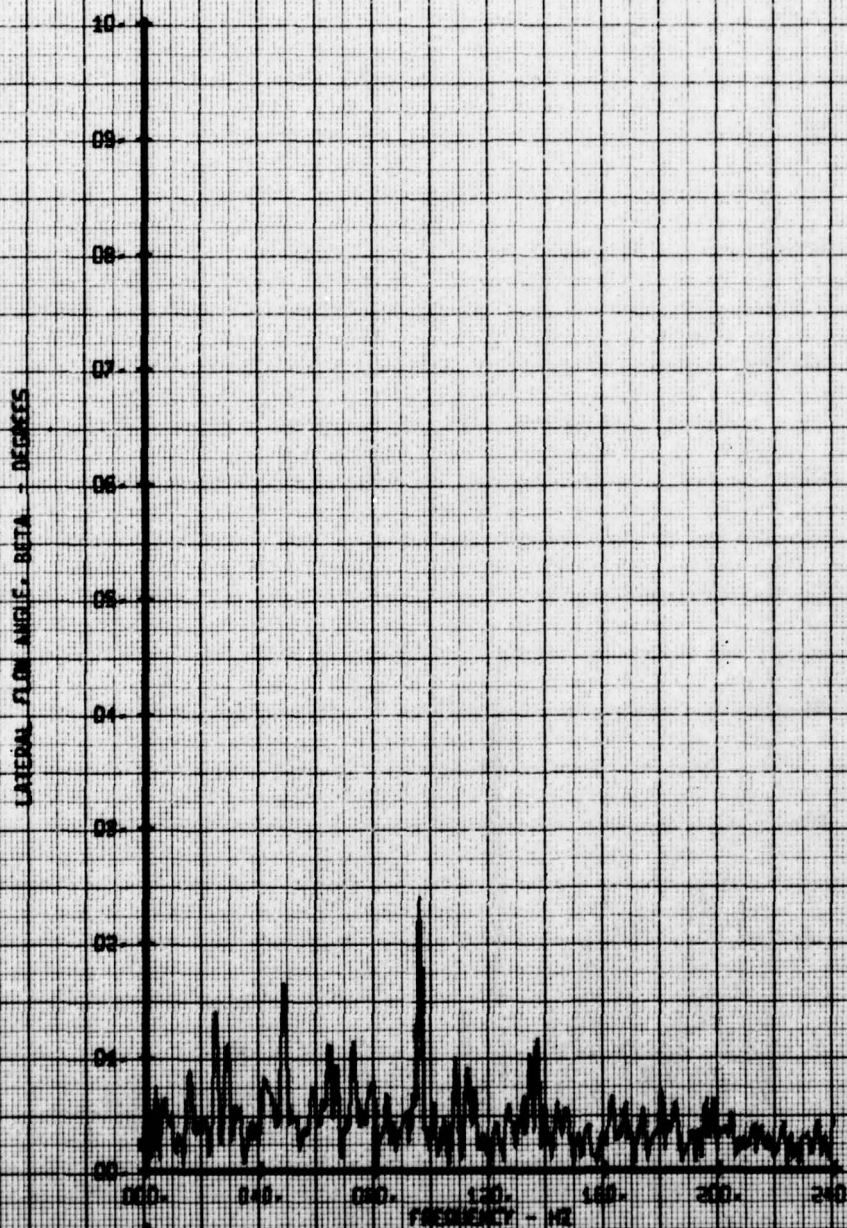
HOT FILM WAVE FREQUENCY ANALYSIS
 BASE CONFIG: TRAVERSE ABOVE T/R C-L.
 RUN 114 TP 4

LEGEND
 CH PARAMETER
 65 BETA



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE ABOVE T/R C.L.
RUN 114 TP 5

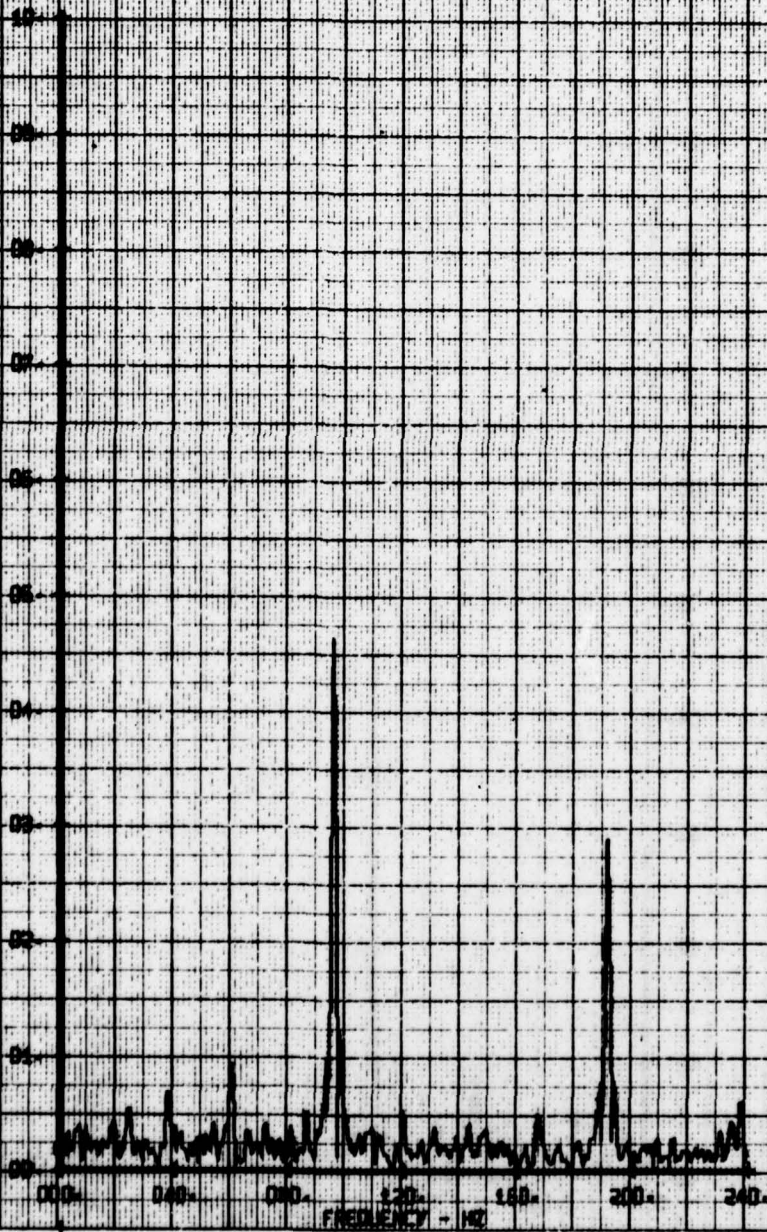
LEGEND
CH 65
PARAMETER
BETA



NOT FILM VIB. FREQUENCY ANALYSIS
WAVE CENTER: 174.000 Hz
BIN 104 Hz

LONG
CM PARAMETER
65 8878

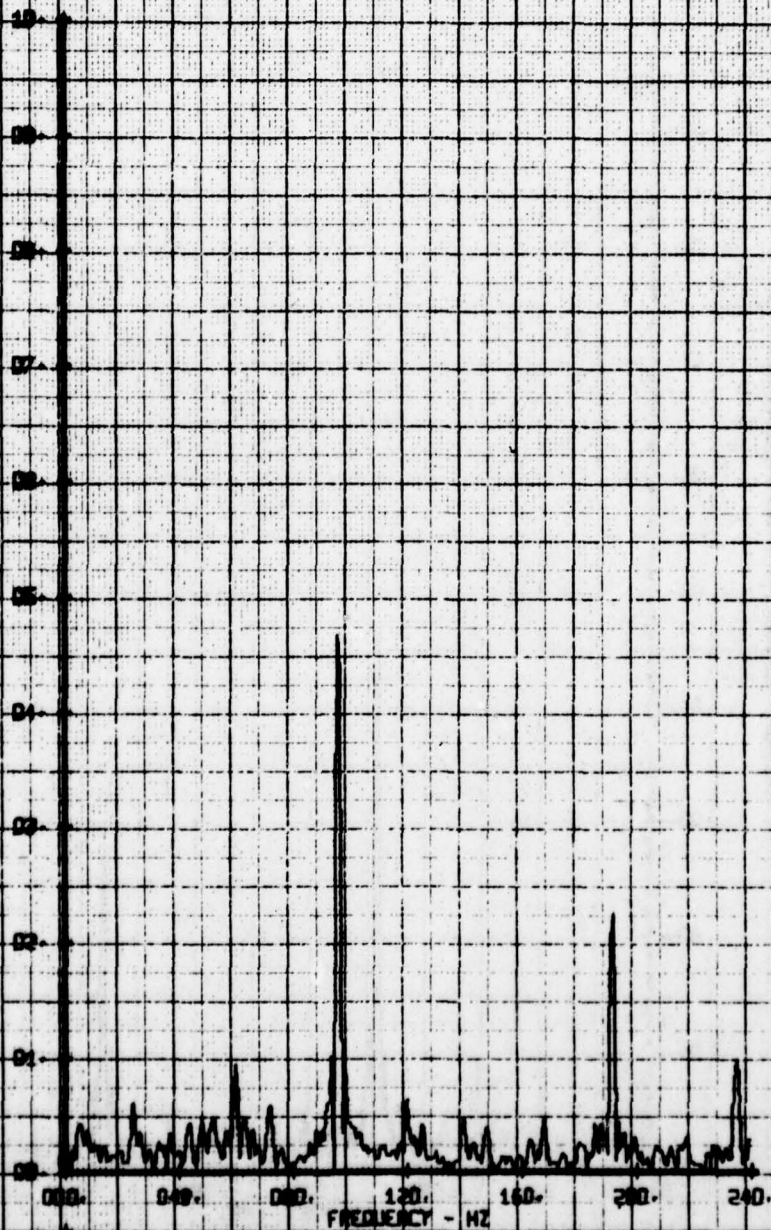
LATERAL FLUX ANGLE - DEGA



NOT FILM WIRE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE ABOVE T/R C-L.
RUN 144 TP 20

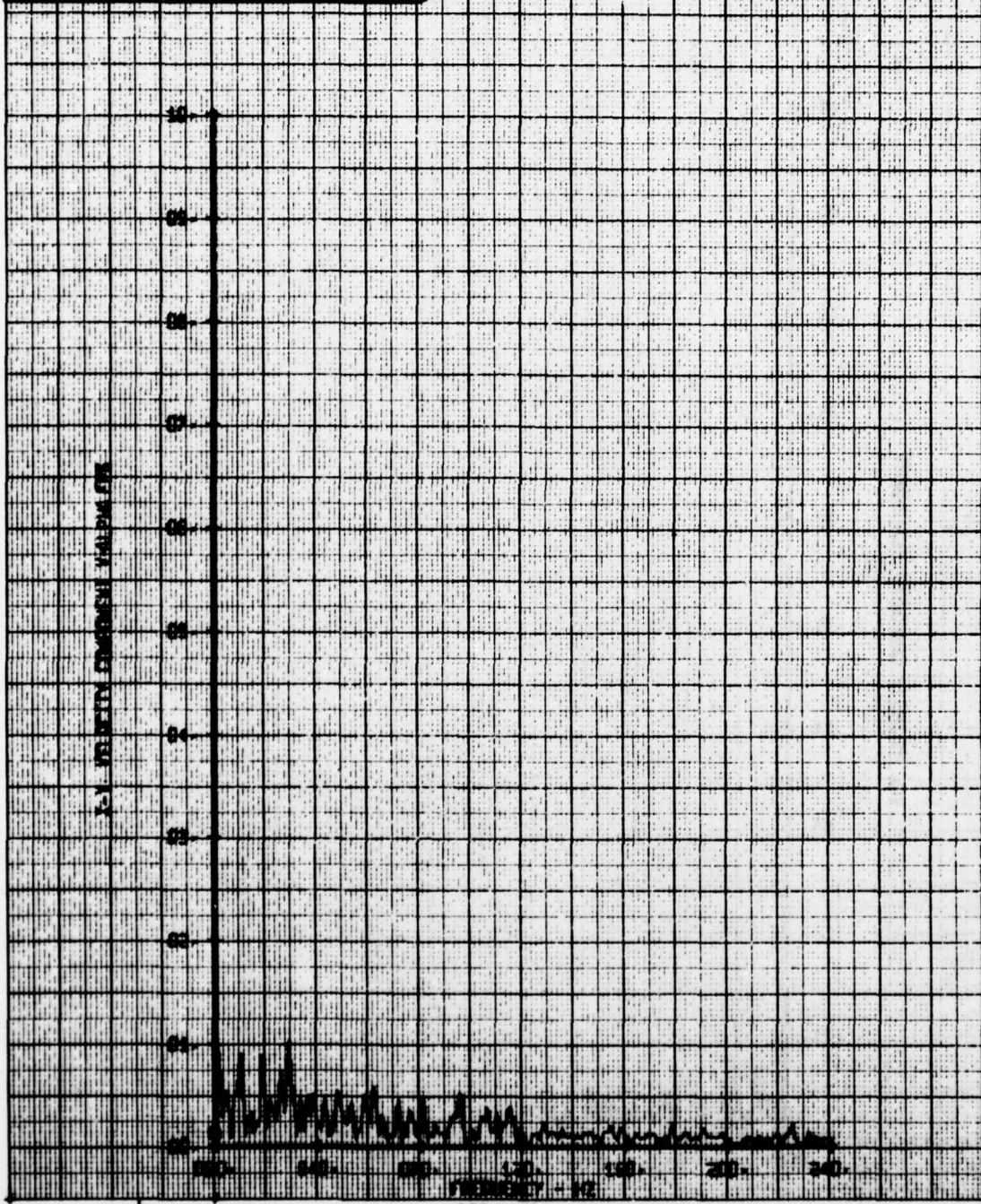
LEGEND
CH PARAMETER
G2 BETA

LATERAL FILM AREA, BETA - DEGREES



HOT FILM WIRE FREQUENCY ANALYSIS
 BASE CONTIN. TRAVERSE ABOVE 1/2 R.L.
 RUN 114 TP 3

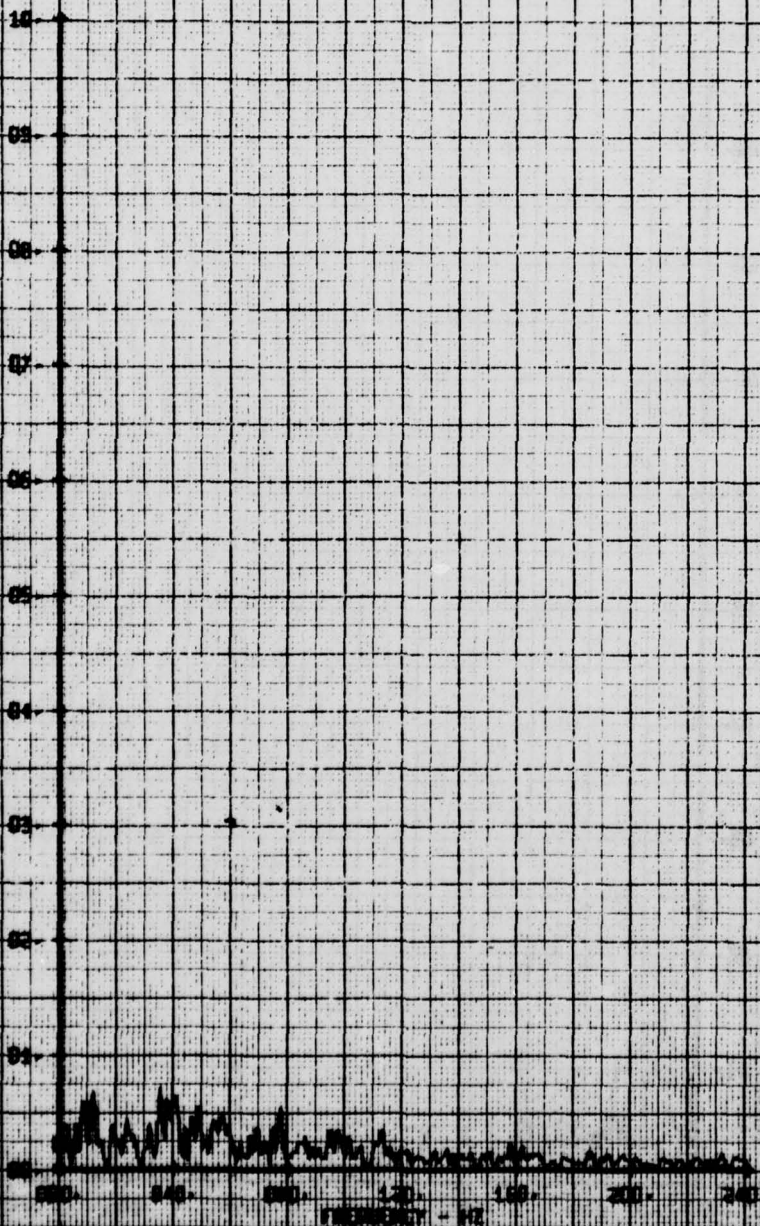
LEGEND
 CH PARAMETER
 66 V-ALPHA



HOT FILM WAKE FREQUENCY ANALYSIS
 BASE CONE TR. TRAVERSE ABOVE T/R D.L.
 RUN 114 TP 1

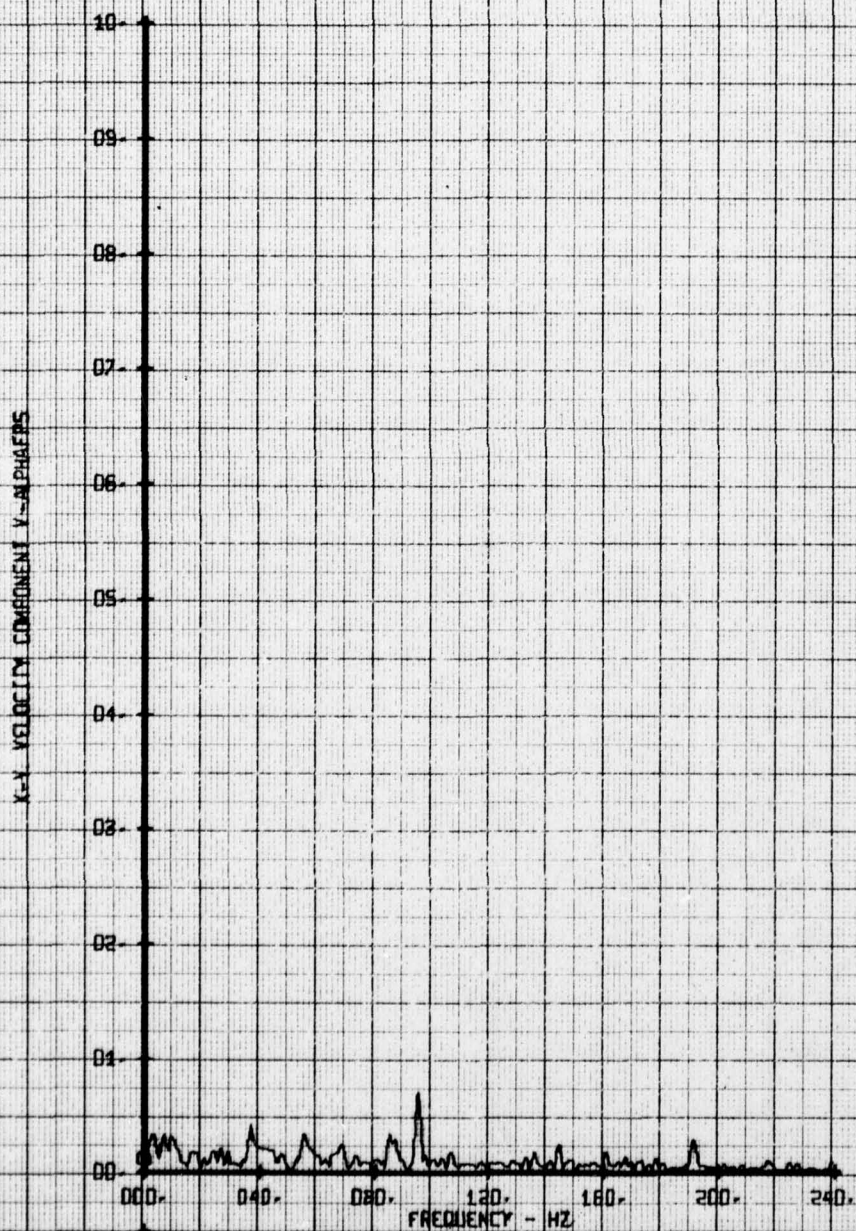
LEGEND
 CH PARAMETER
 66 V-ALPHA

X-Y VELOCITY COMPONENT V-ALPHA



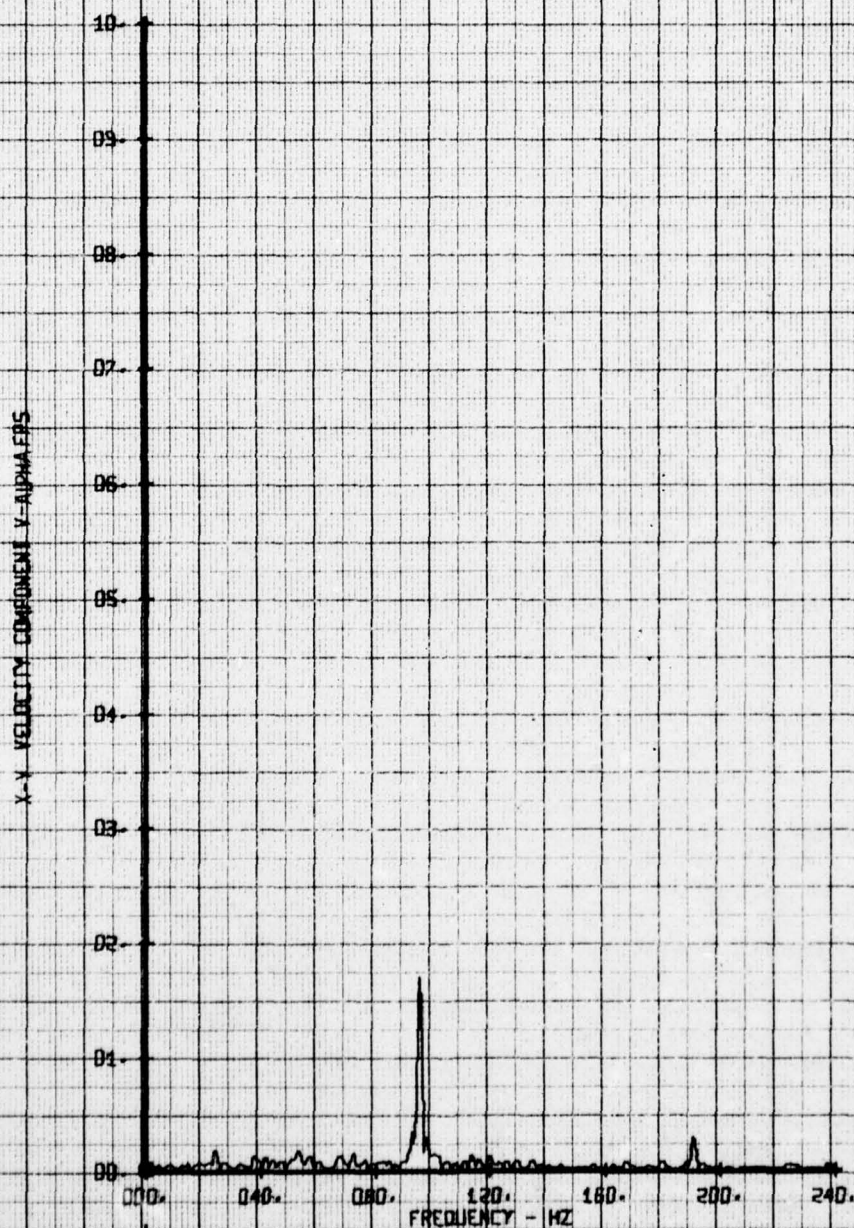
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE ABOVE T/R C.L.
RUN 114 TP 6

LEGEND
CH PARAMETER
66 V-ALPHA



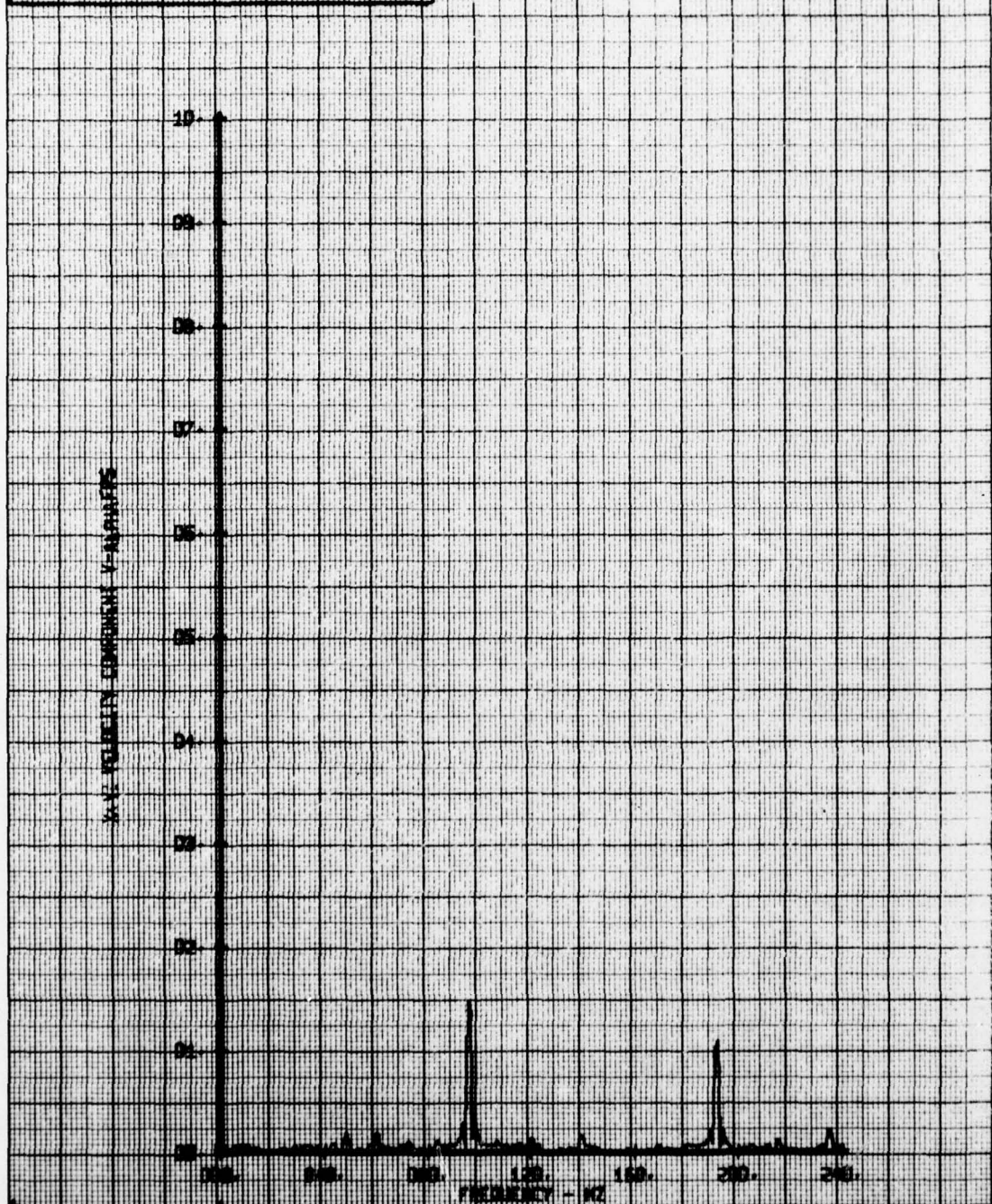
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG- TRAVERSE ABOVE T/R C-L-
RUN 114 TP 0

LEGEND
CM PARAMETER
66 V-ALPHA



HOT FILM WAKE FREQUENCY ANALYSIS
 BASE CONFIG. TRAVERSE ABOVE T/R C-L.
 RUN 114 TP 10

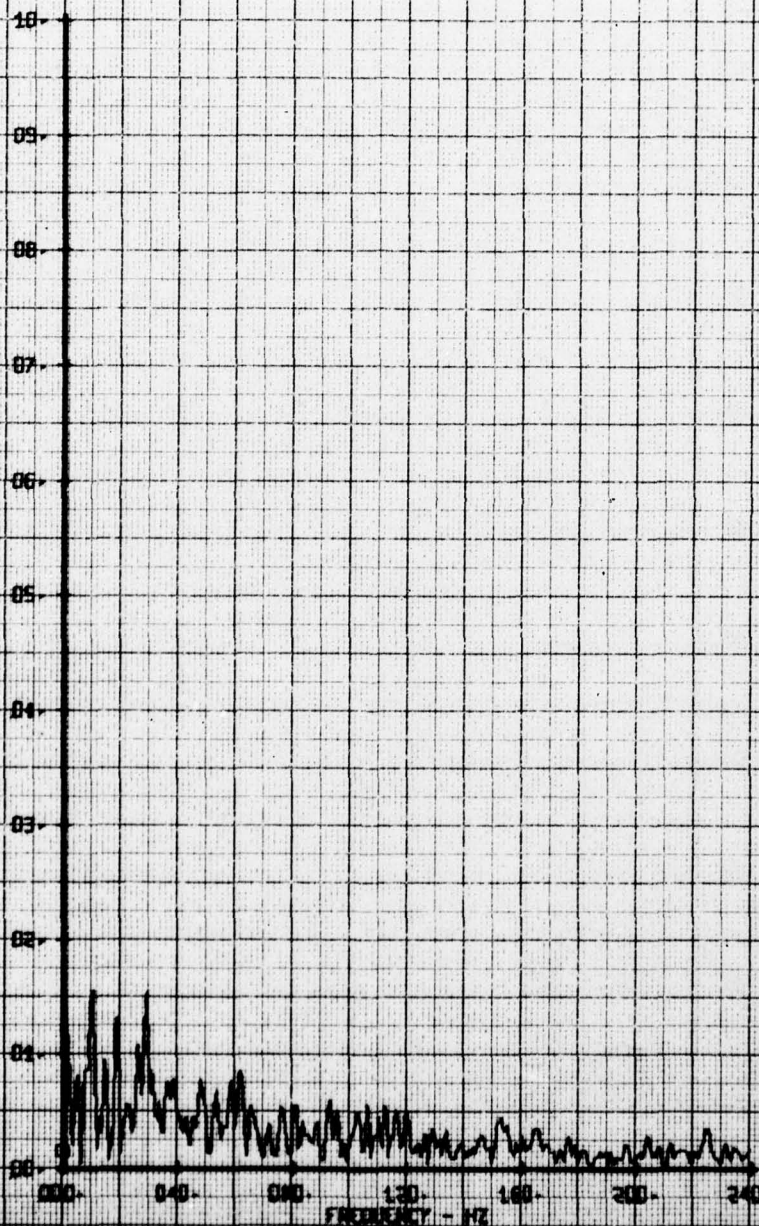
LEGEND
 CH PARAMETER
 66 V-ALPHA

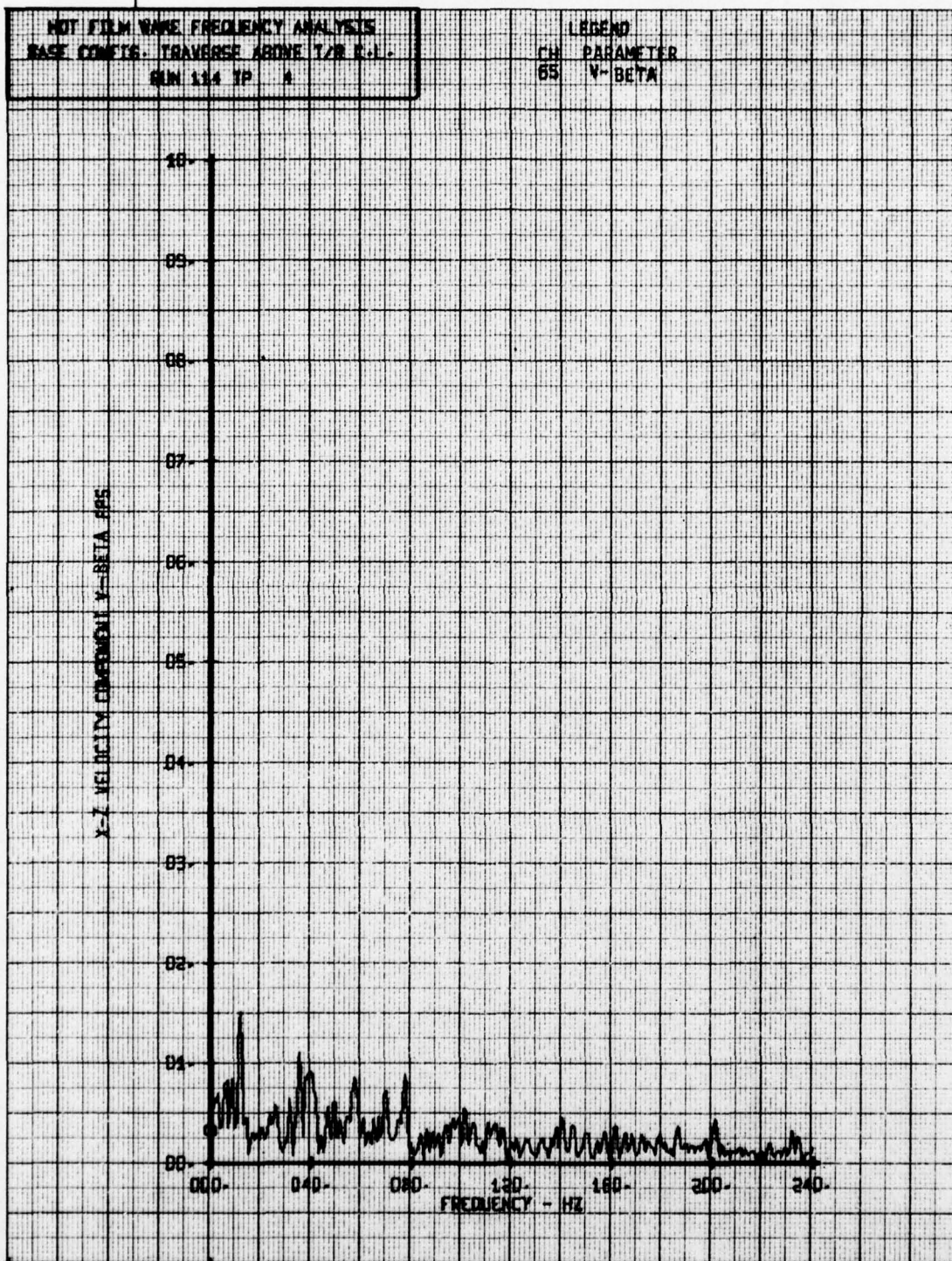


HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE ABOVE 1/R C.L.
RUN 114 TP 2

LEGEND
CH PARAMETER
65 V-BETA

X-Z VELOCITY COMPONENT V-BETA FPS

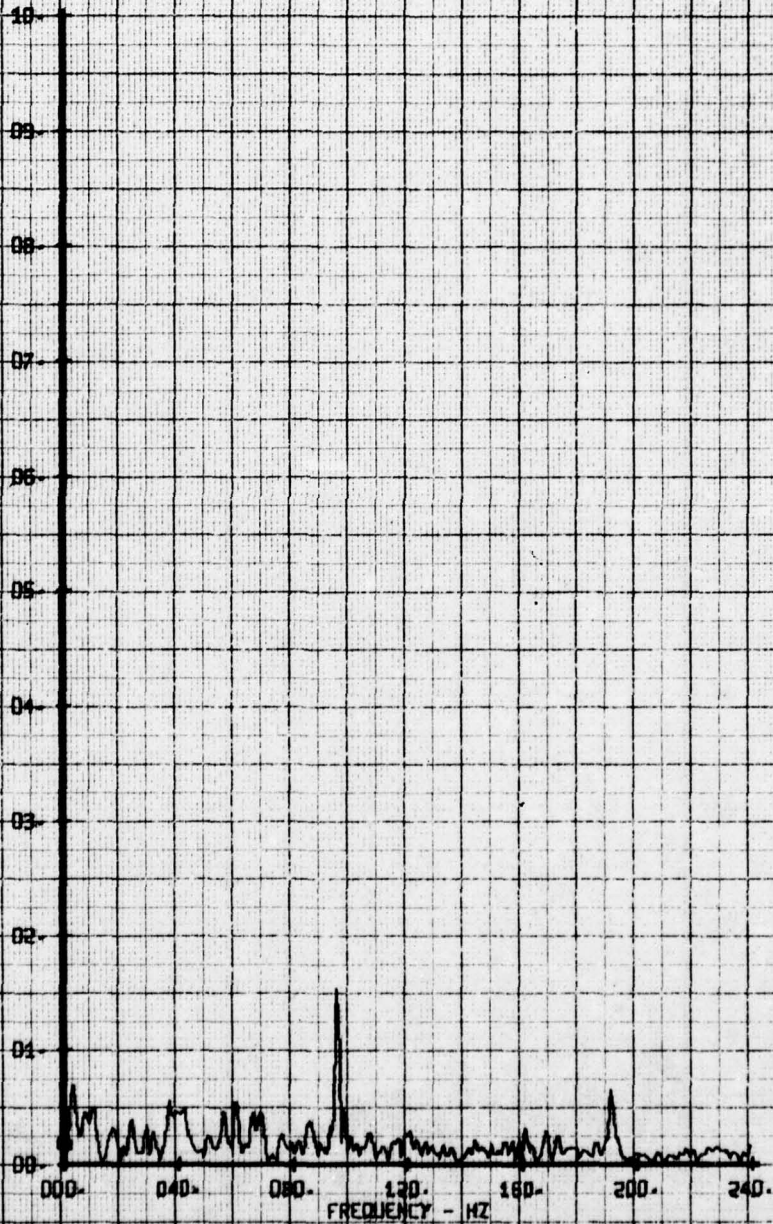




HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG- TRAVERSE ABOVE T/R C-1-
RUN 114 TP 5

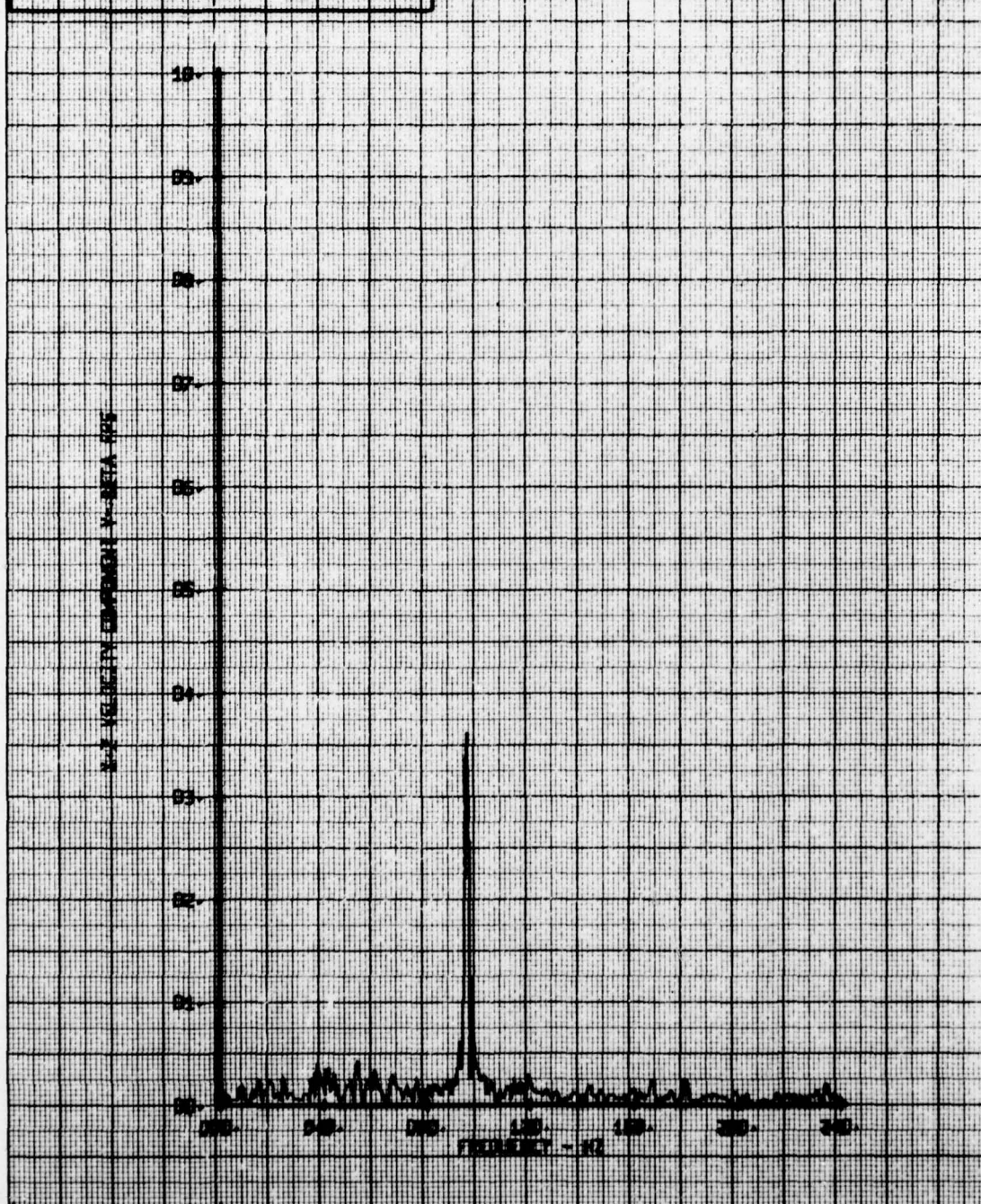
LEGEND
CH PARAMETER
65 V-BETA

X-Z VELOCITY COMPONENT V-BETA FPS



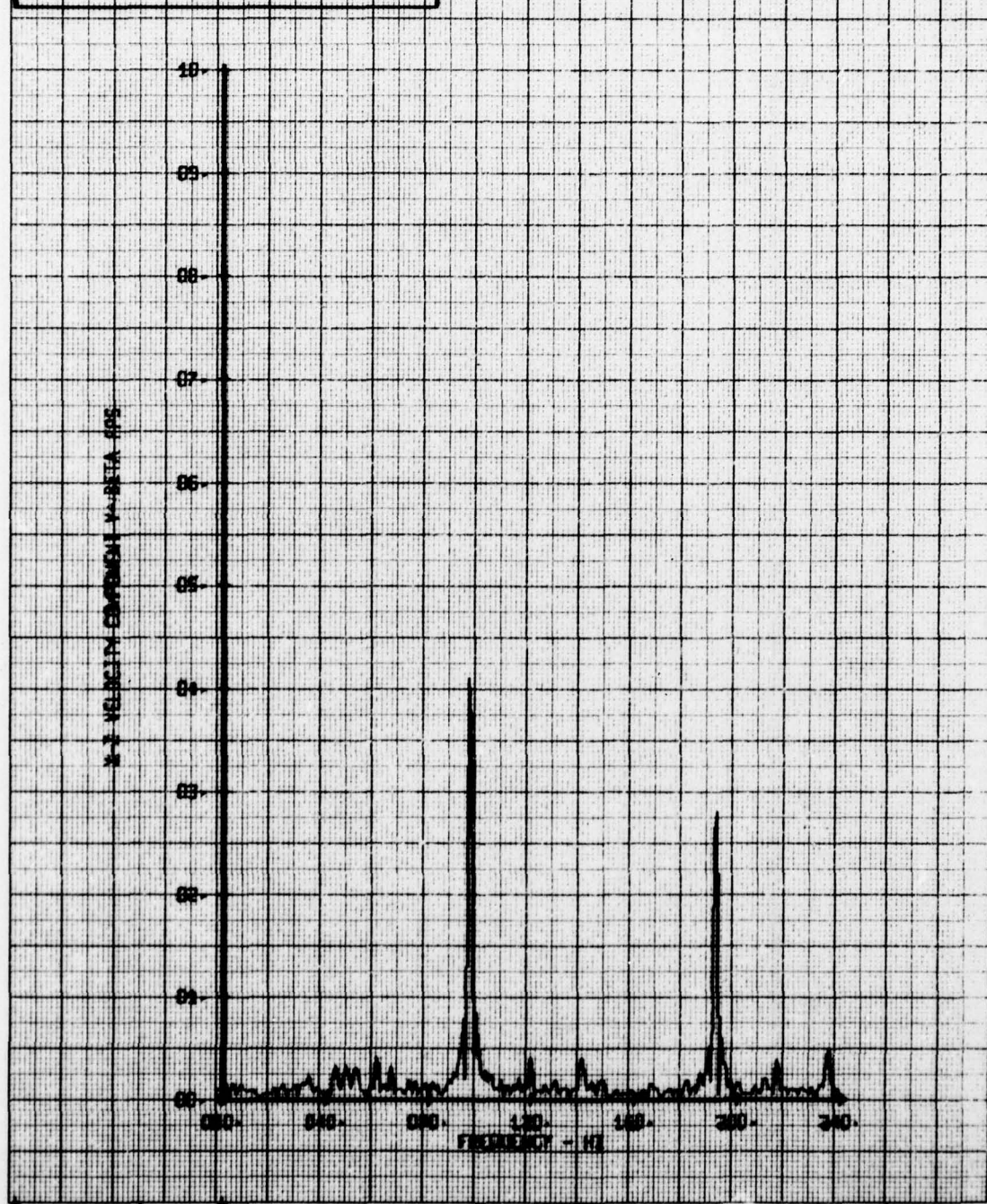
NOT FILM WAVE FREQUENCY ANALYSIS
 BASE CONFIR. TRANSFER ABOVE T/R C-L-
 RUN 114 TP 8

LEGEND
 CH PARAMETER
 05 V-BETA



NOT FILM WAVE FREQUENCY ANALYSIS
 BASE CONFIG. TRAVERSE ABOVE 1/R C.I.
 RUN 1.14 TP 10

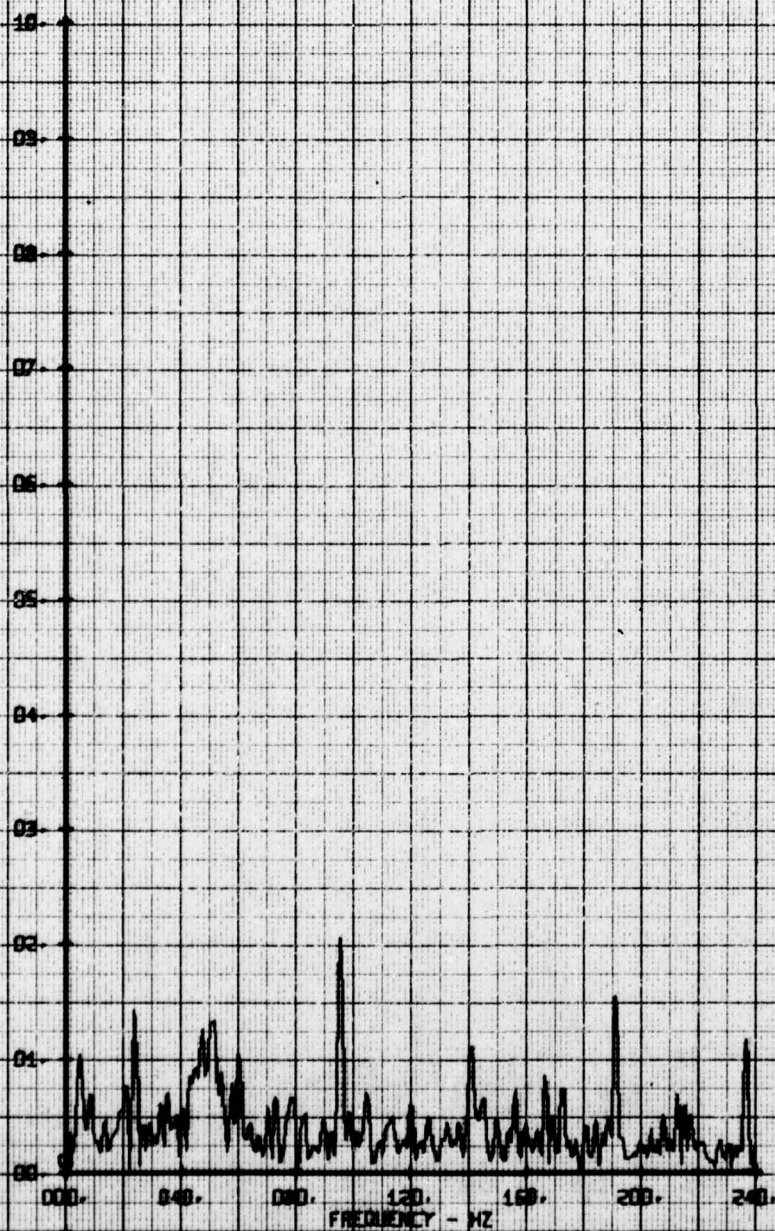
LEGEND
 CH PARAMETER
 65 V-BETA



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONVIG. TRAVERSE BEHIND STAR-
RUN 115 TP 3

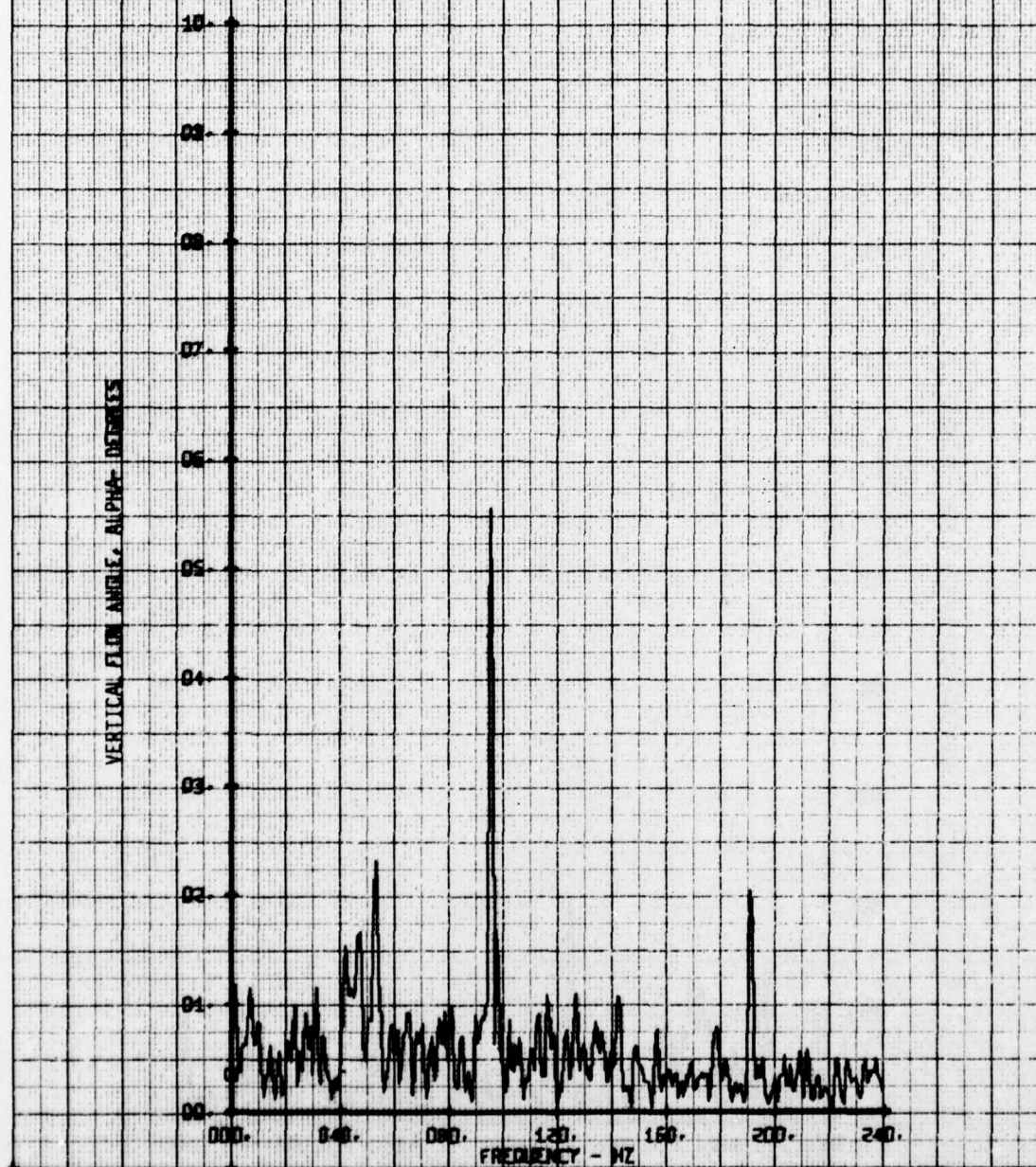
LEGEND
CH PARAMETER
66 ALPHA

VERTICAL FLOW ANGLE, ALPHA - DEGREES



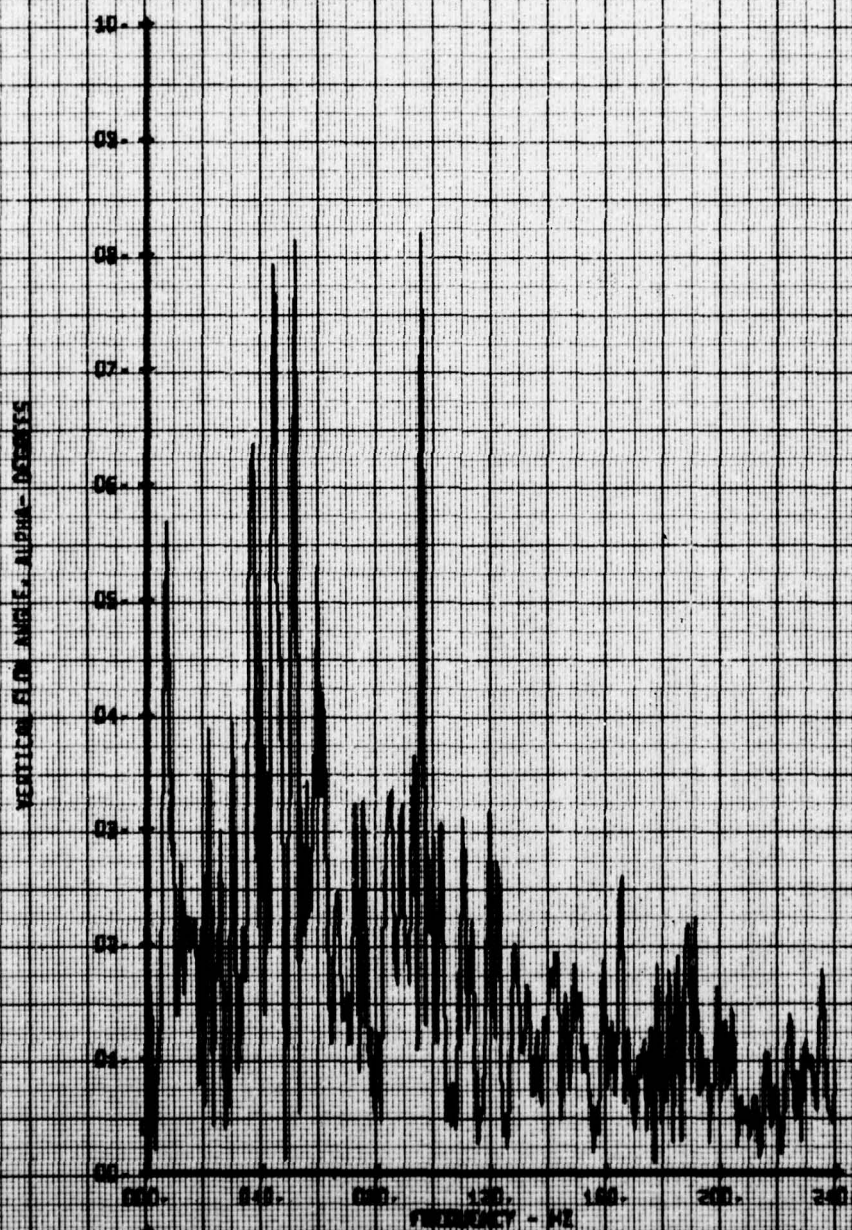
HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE BEHIND STAB.
RUN 115 TP 4

LEGEND
CH 66
PARAMETER
ALPHA



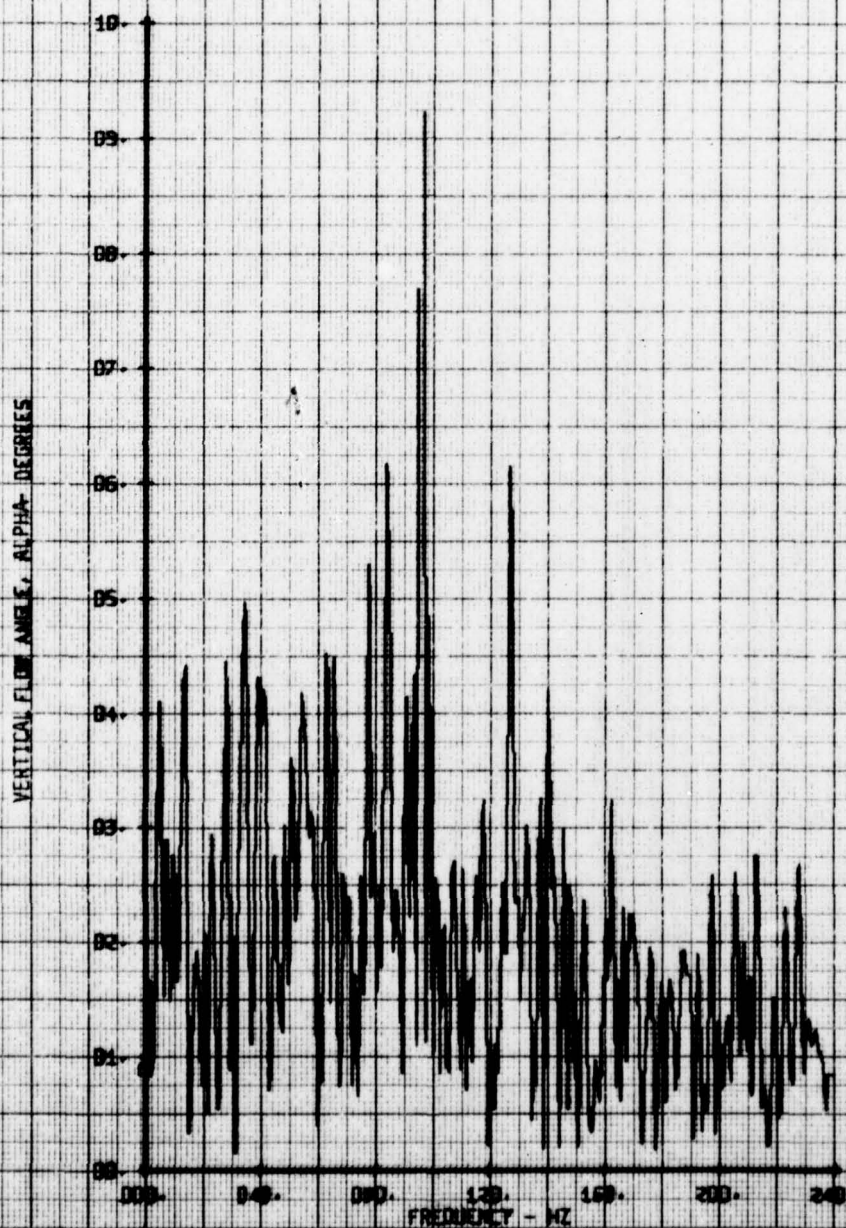
HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE BEHIND STAB.
RUN 115 TP 5

LEGEND
CH PARAMETER
66 ALPHA



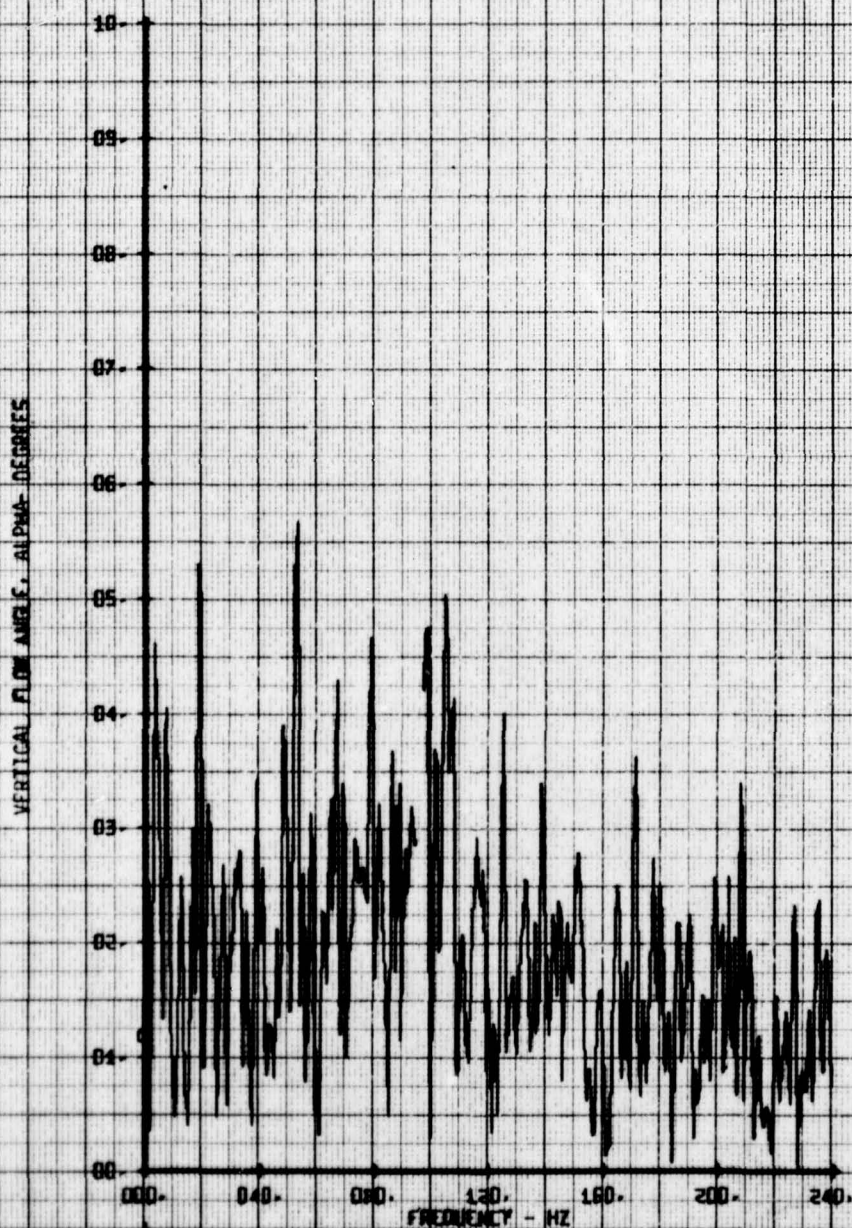
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE BEHIND STAB.
RUN 115 TP 9

LEGEND
CH PARAMETER
66 ALPHA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE BEHIND STAR.
RUN 115 TP 10

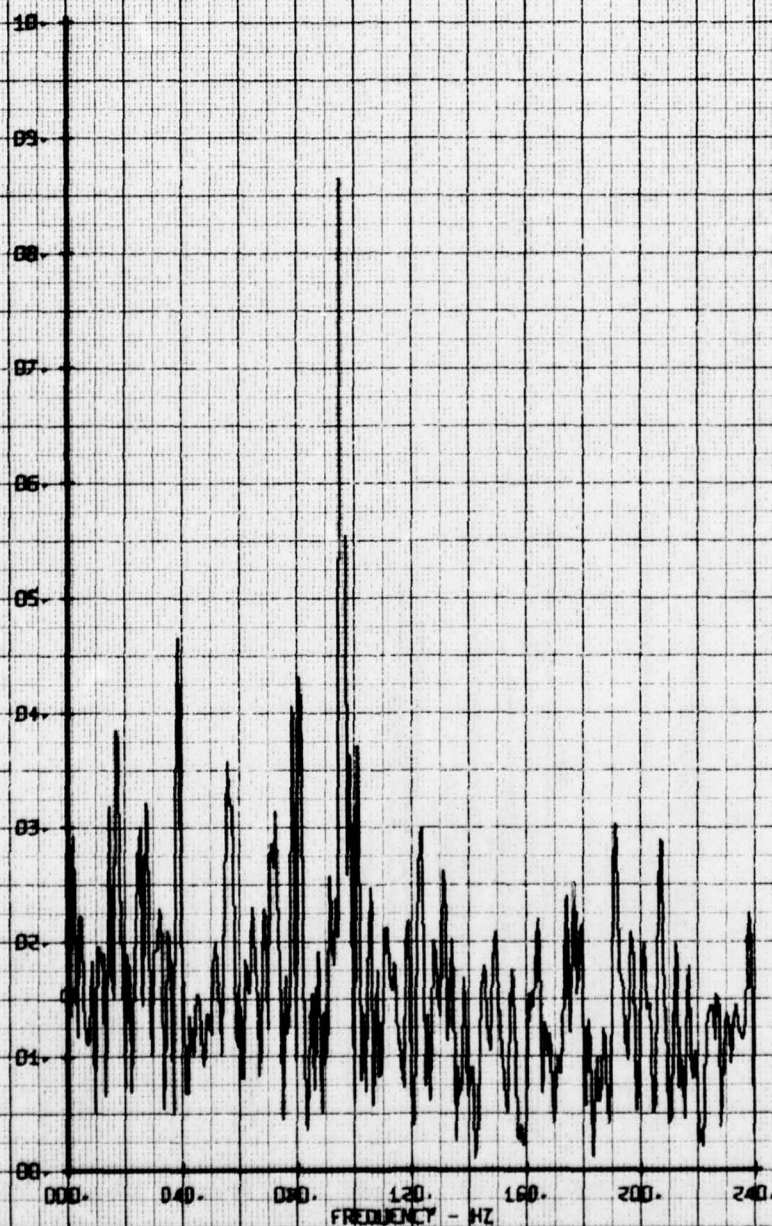
LEGEND
CH PARAMETER
66 ALPHA



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG: TRAVERSE BEHIND STAR-
RUN 115 TP 12

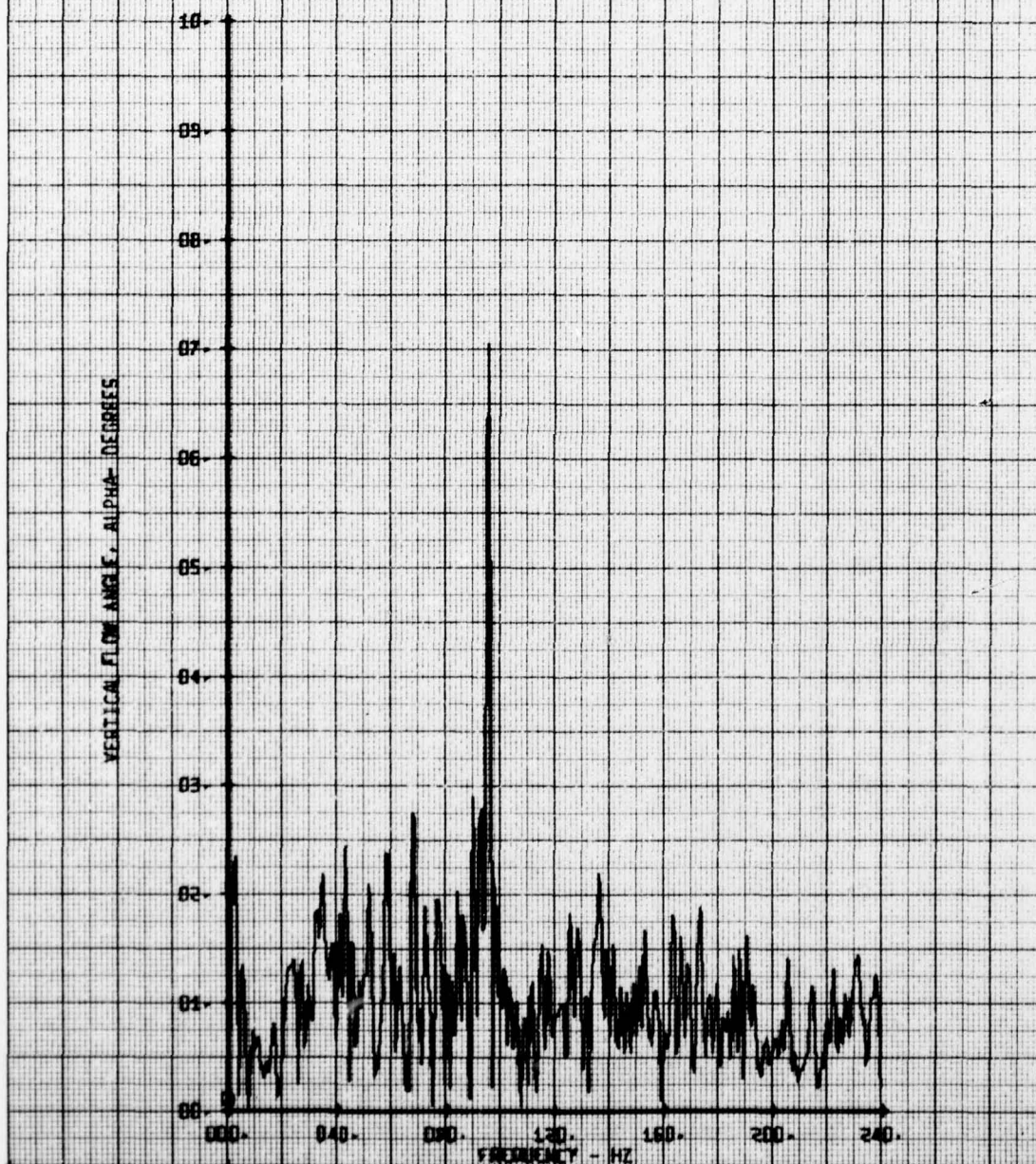
LEGEND
CH PARAMETER
66 ALPHA

VERTICAL FLOW ANGLE, ALPHA - DEGREES



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE BEHIND STAB.
RUN 115 TP 14

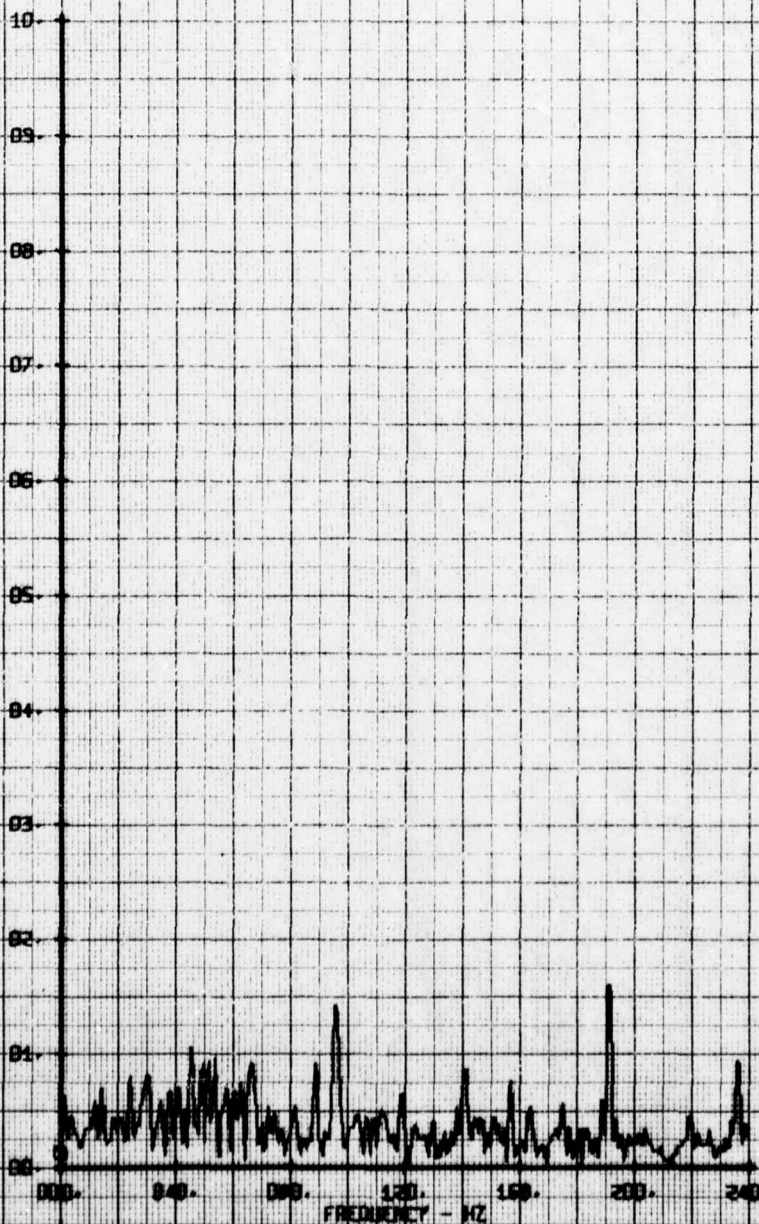
LEGEND
CH PARAMETER
66 ALPHA



HDT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG: TRAVERSE BEHIND STAB-
RUN 115 TP 16

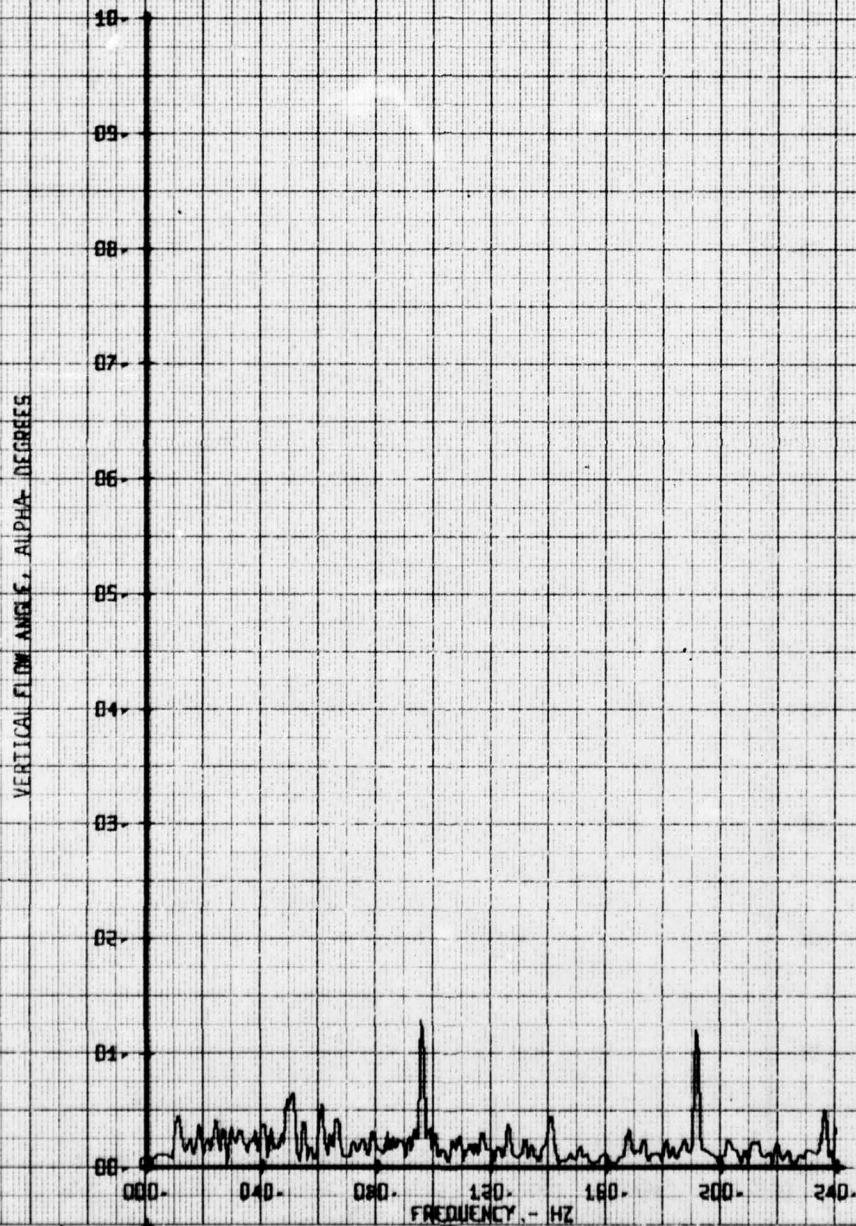
LEGEND
CH 66 PARAMETER
ALPHA

VERTICAL FLOW ANGLE, ALPHA- DEGREES



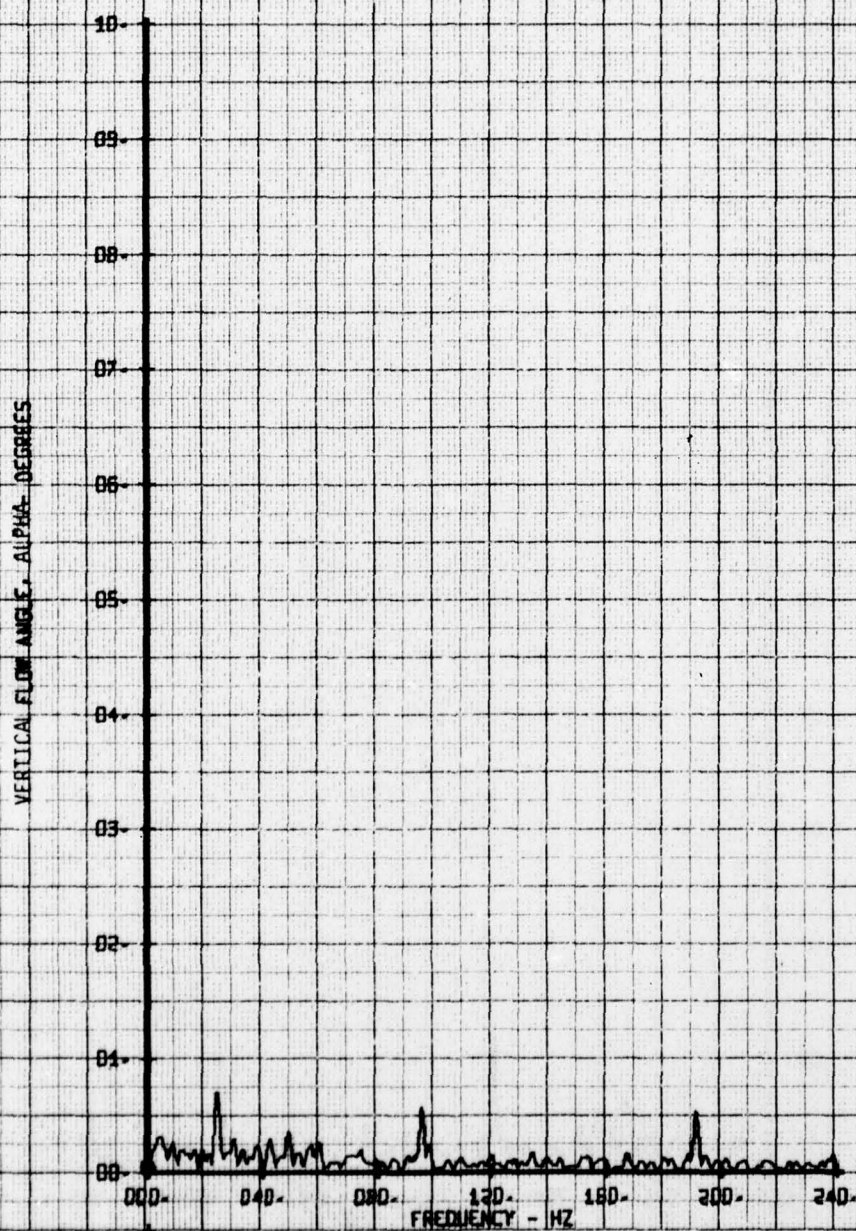
NOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFG. TRAVERSE BEHIND STAR.
RUN 115 YP 18

LEGEND
CH PARAMETER
66 ALPHA



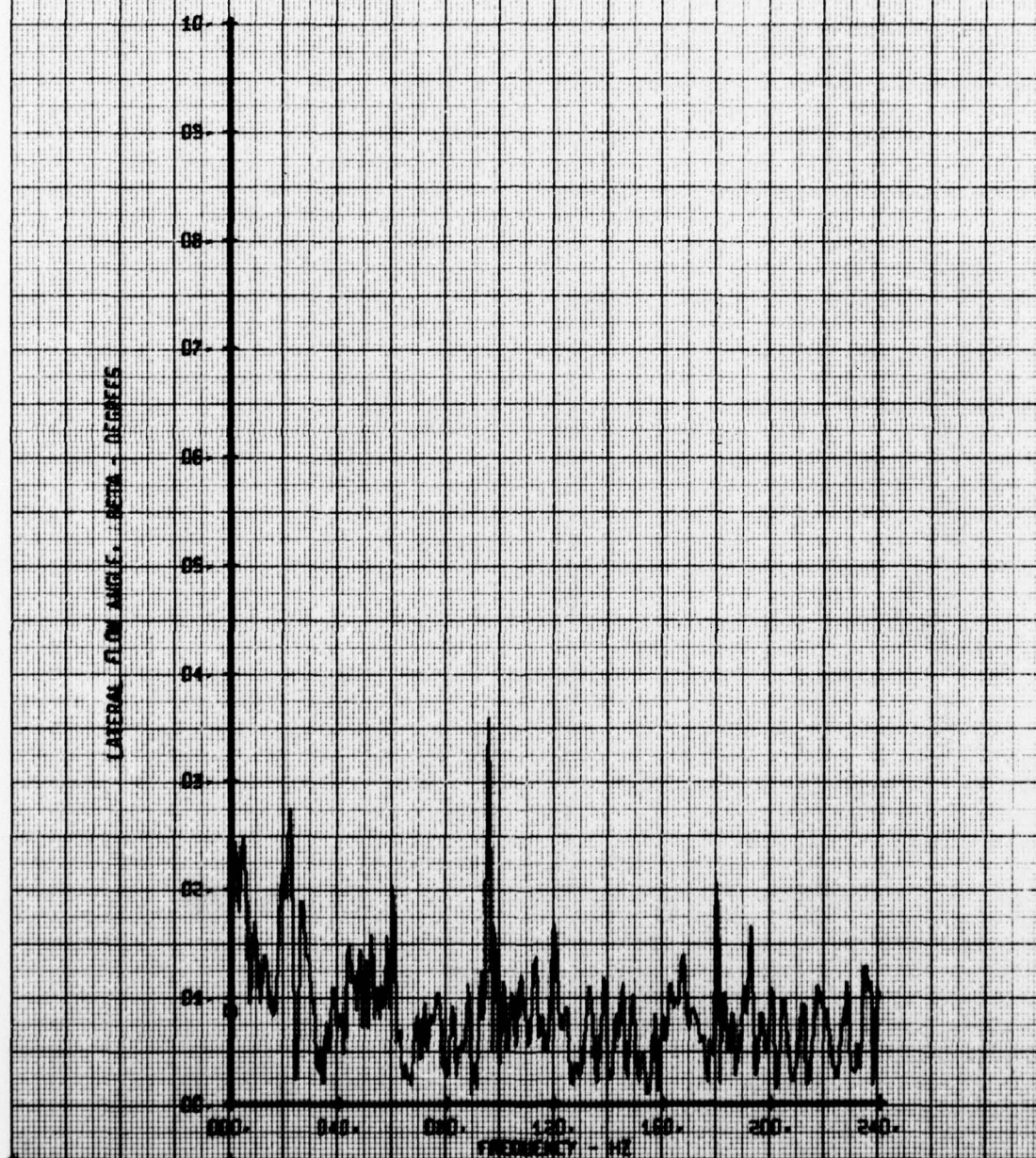
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE BEHIND STAR
RUN 115 TP 20

LEGEND
CH PARAMETER
66 ALPHA



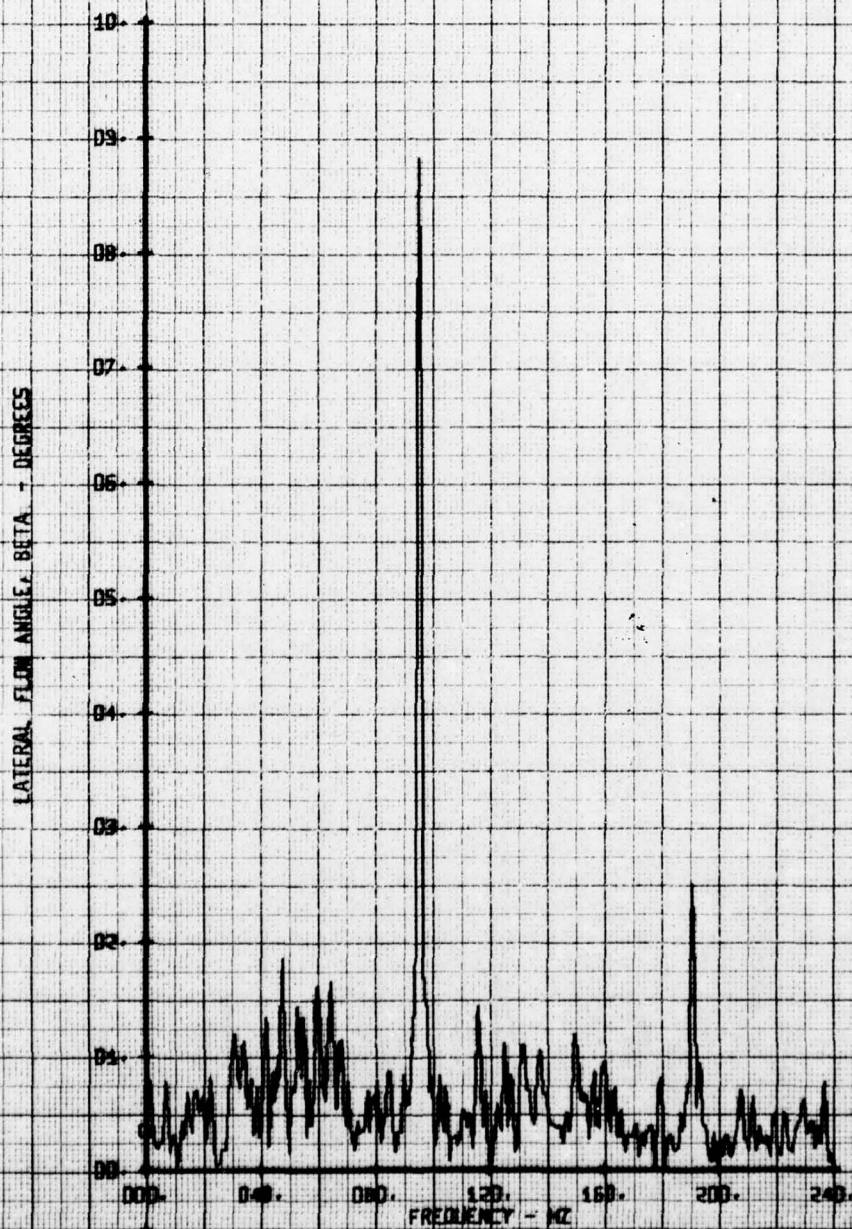
HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG: TRAVERSE BEHIND STAB.
RUN 115 TP 3

LEGEND
CH 65
PARAMETER
BETA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE BEHIND STAB.
RUN 115 TP 4

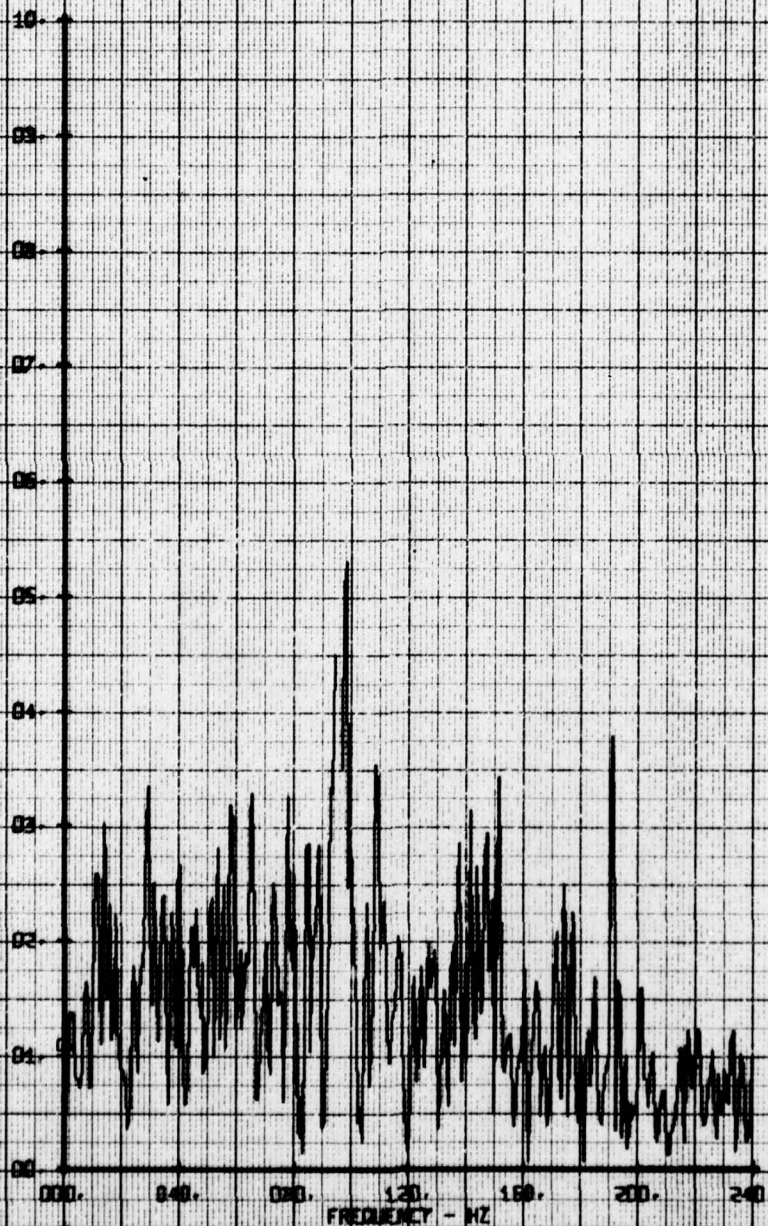
LEGEND
CM PARAMETER
65 BETA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG: TRAVERSE BEHIND STAR
RUN 115 TP 6

LEGEND
CH 65
PARAMETER
BETA

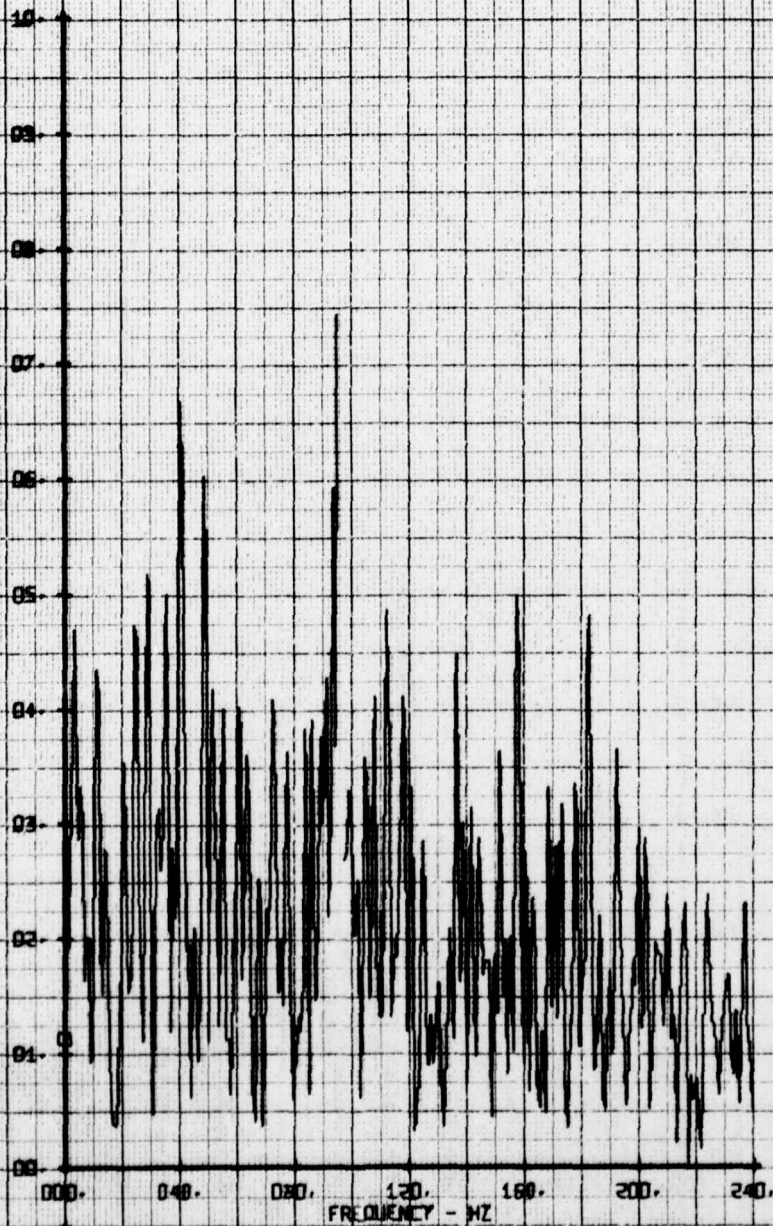
LATERAL FLOW ANGLE, BETA - DEGREES



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE BEHIND STAR.
RUN 115 TP 3

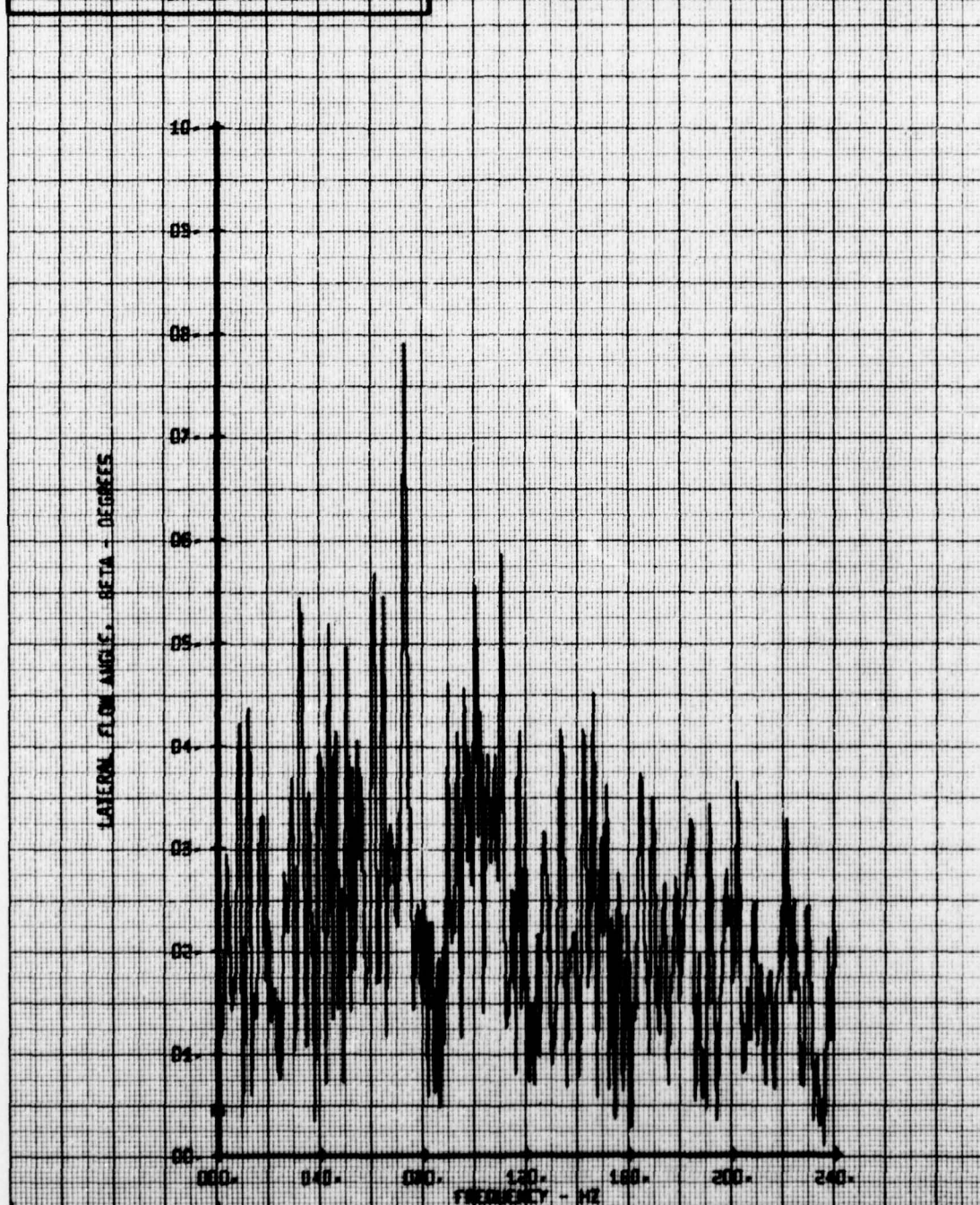
LEGEND
CH PARAMETER
65 BETA

LATERAL FLOW ANGLE, BETA - DEGREES



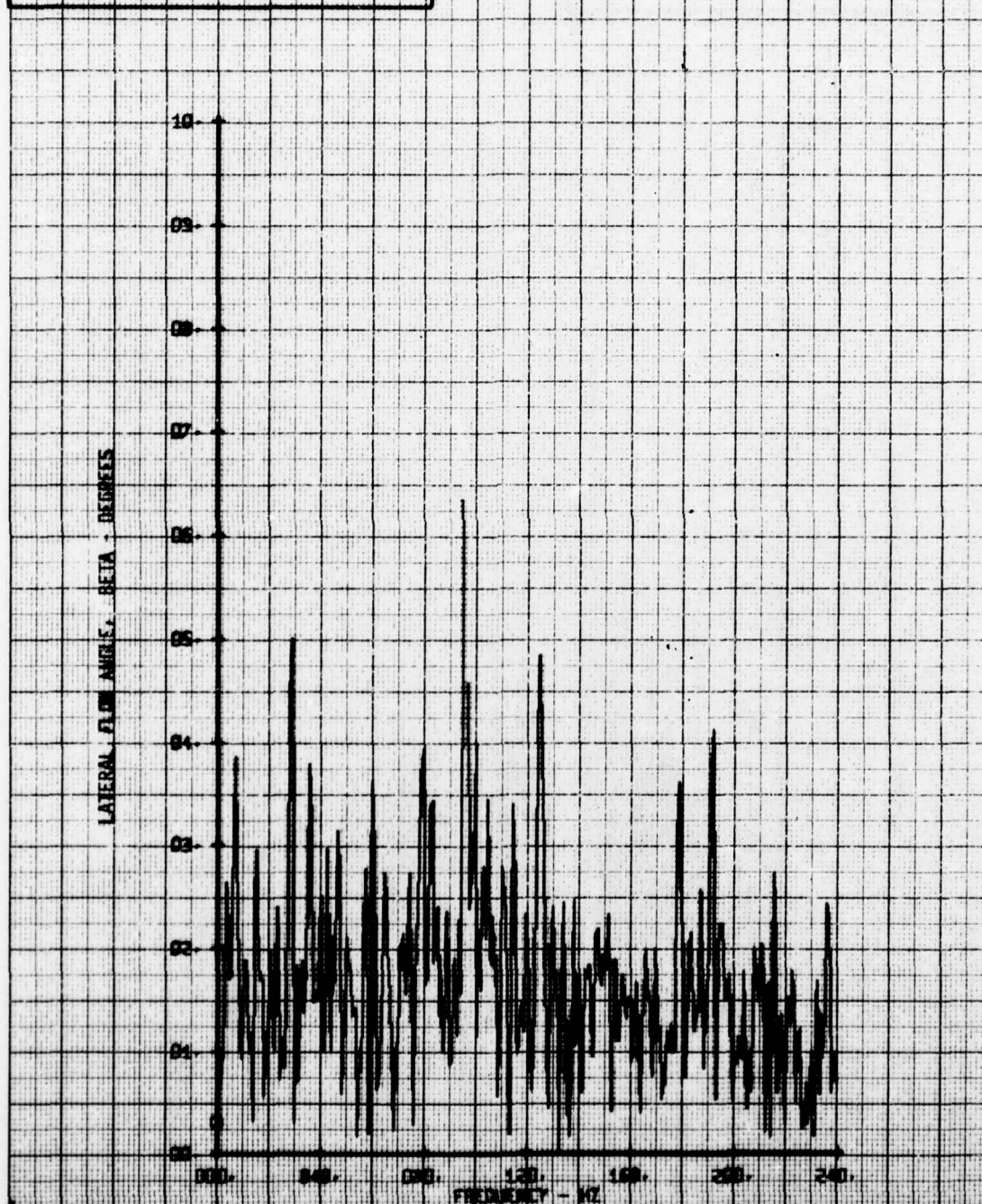
HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG: TRAVERSE BEHIND STAB.
RUN 115 TP 10

LEGEND
CH PARAMETER
65 BETA



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE BEHIND STAR.
RUN 115 TP 12

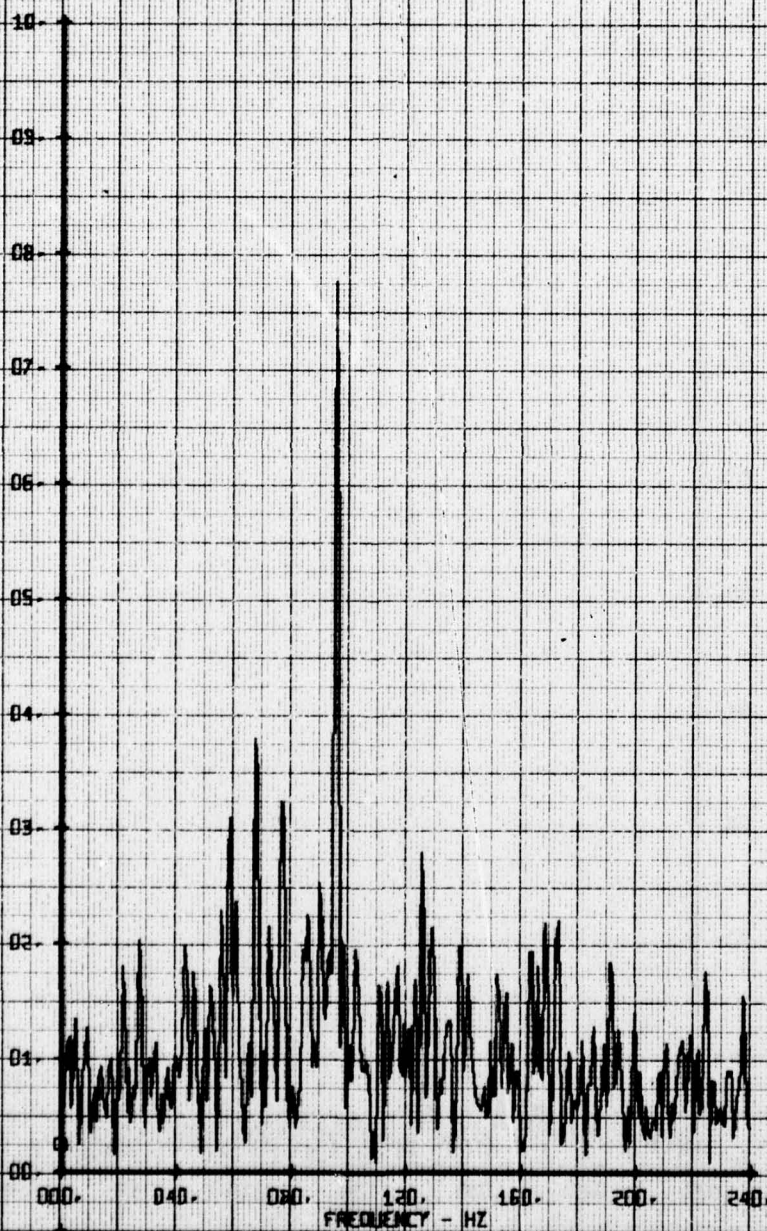
LEGEND
CH PARAMETER
65 BETA



NOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE BEHIND STAR.
RUN 115 TP 14

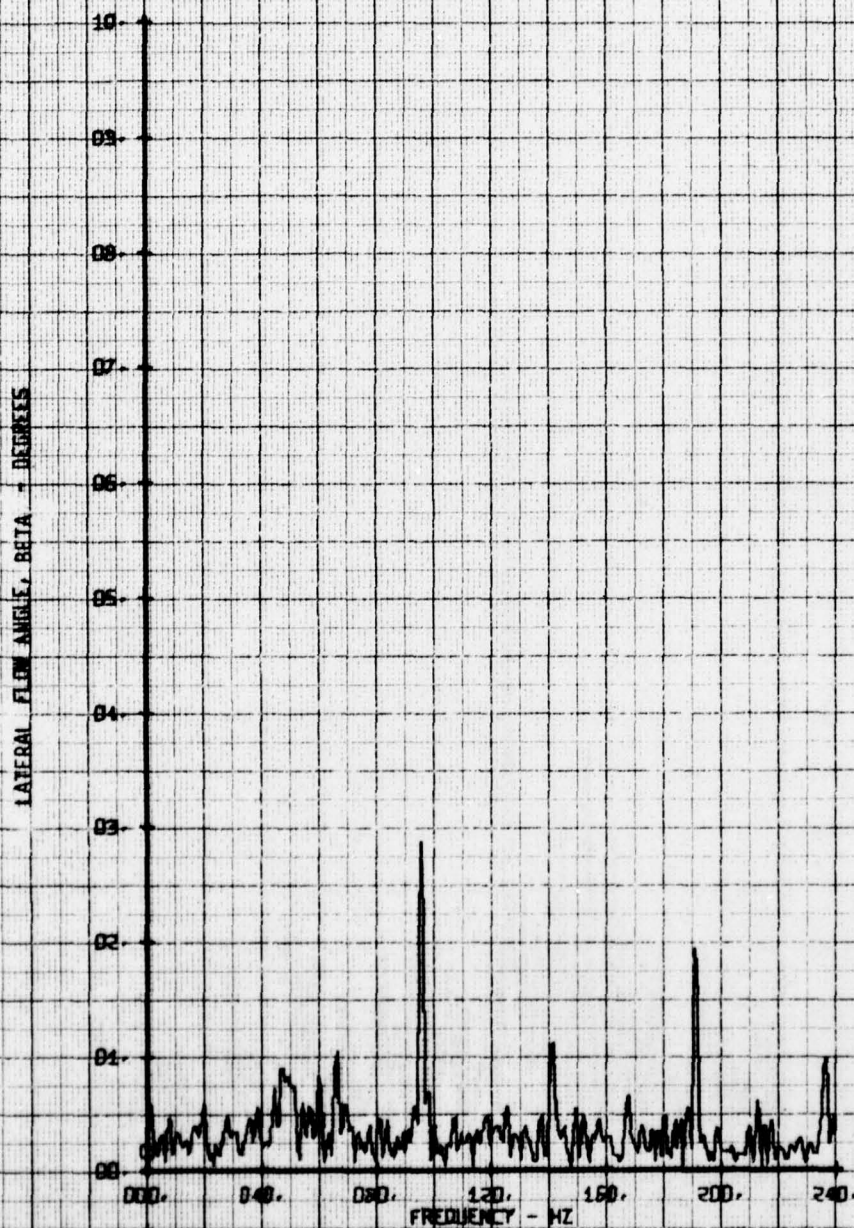
LEGEND
CH PARAMETER
65 BETA

LATERAL FLOW ANGLE, BETA - DEGREES



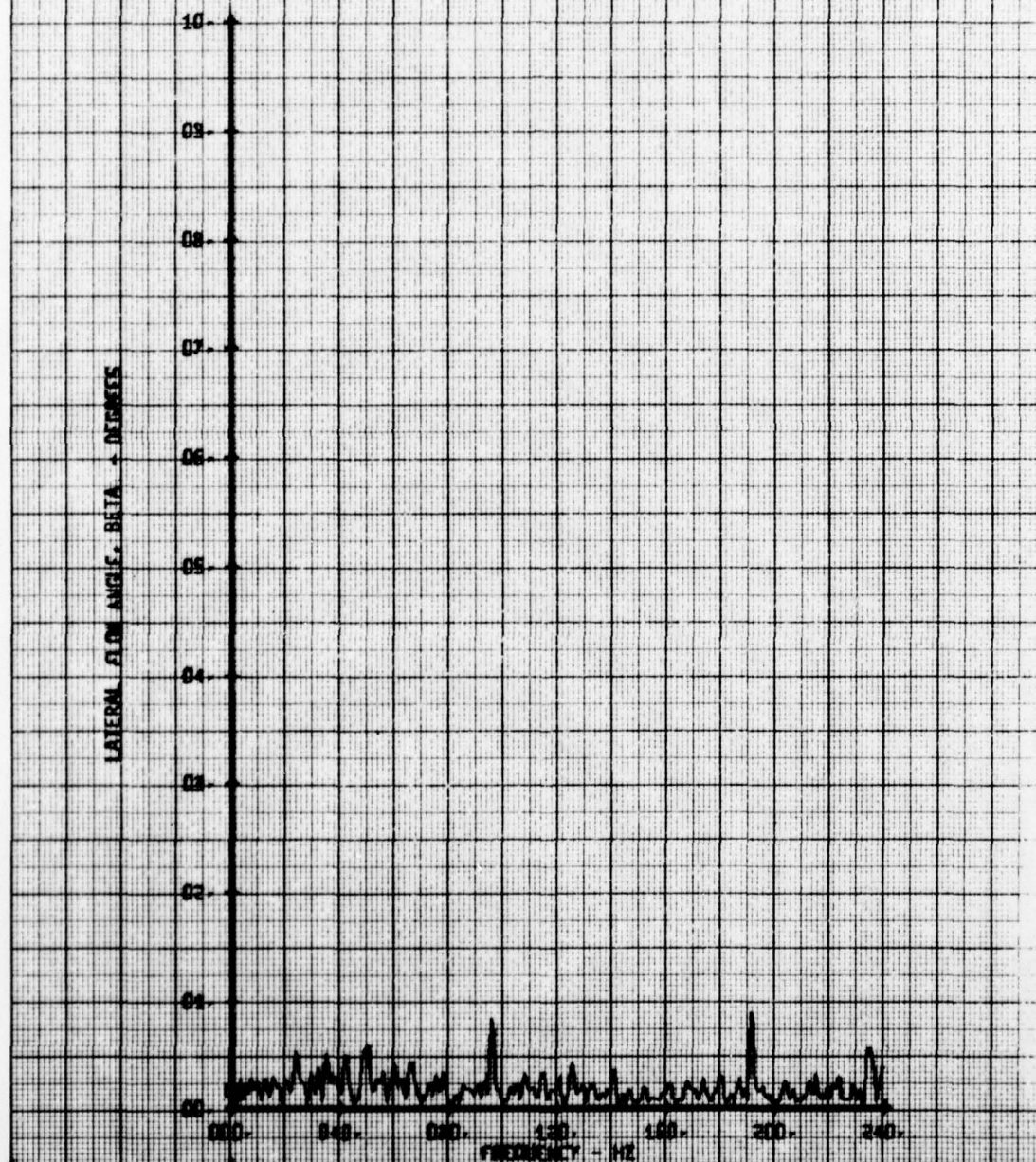
HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG: TRAVERSE BEHIND STAB.
RUN 115 TP 16

LEGEND
CH 65
PARAMETER
BETA



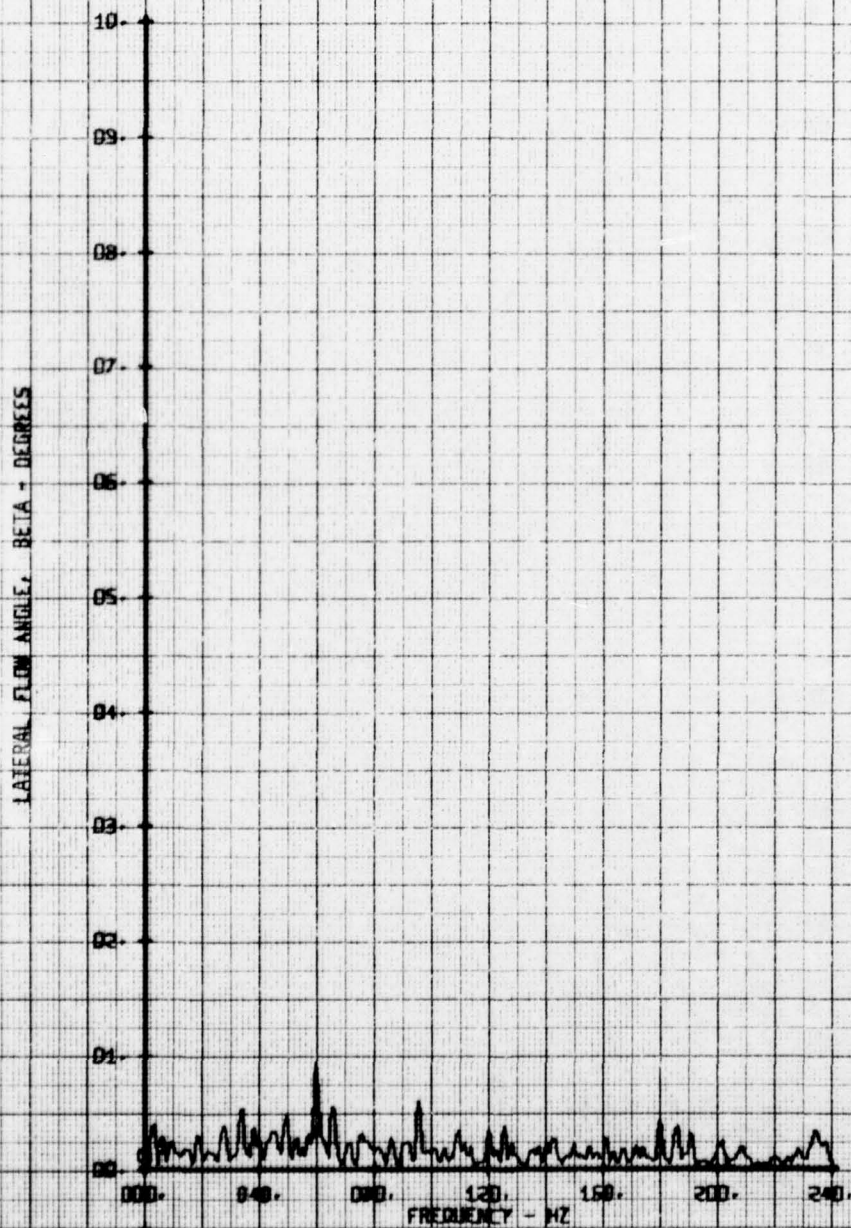
HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE BEHIND STAR.
RUN 115 TP 1B

LEGEND
CH 65
PARAMETER
BETA



HDT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE BEHIND STAB.
RUN 115 TP 20

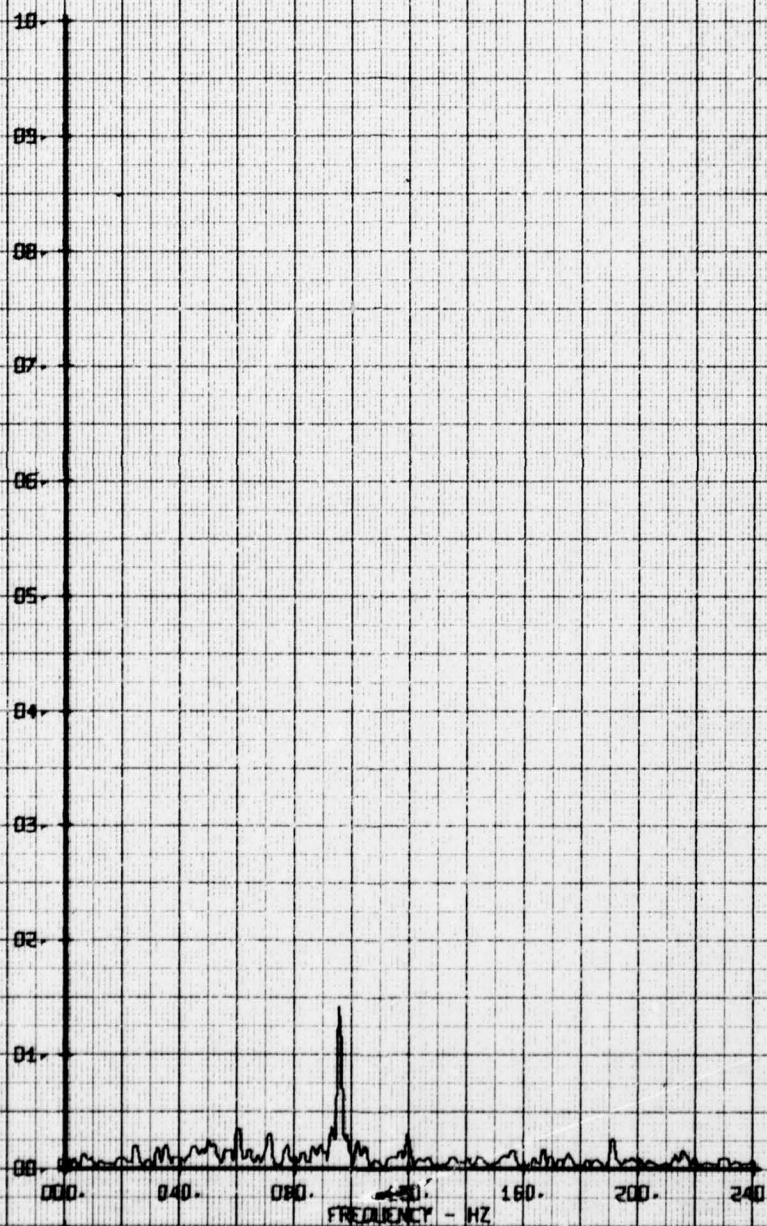
LEGEND
CH 65 PARAMETER
BETA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE BEHIND STAR.
RUN 115 TP 3

LEGEND
CH PARAMETER
66 V-ALPHA

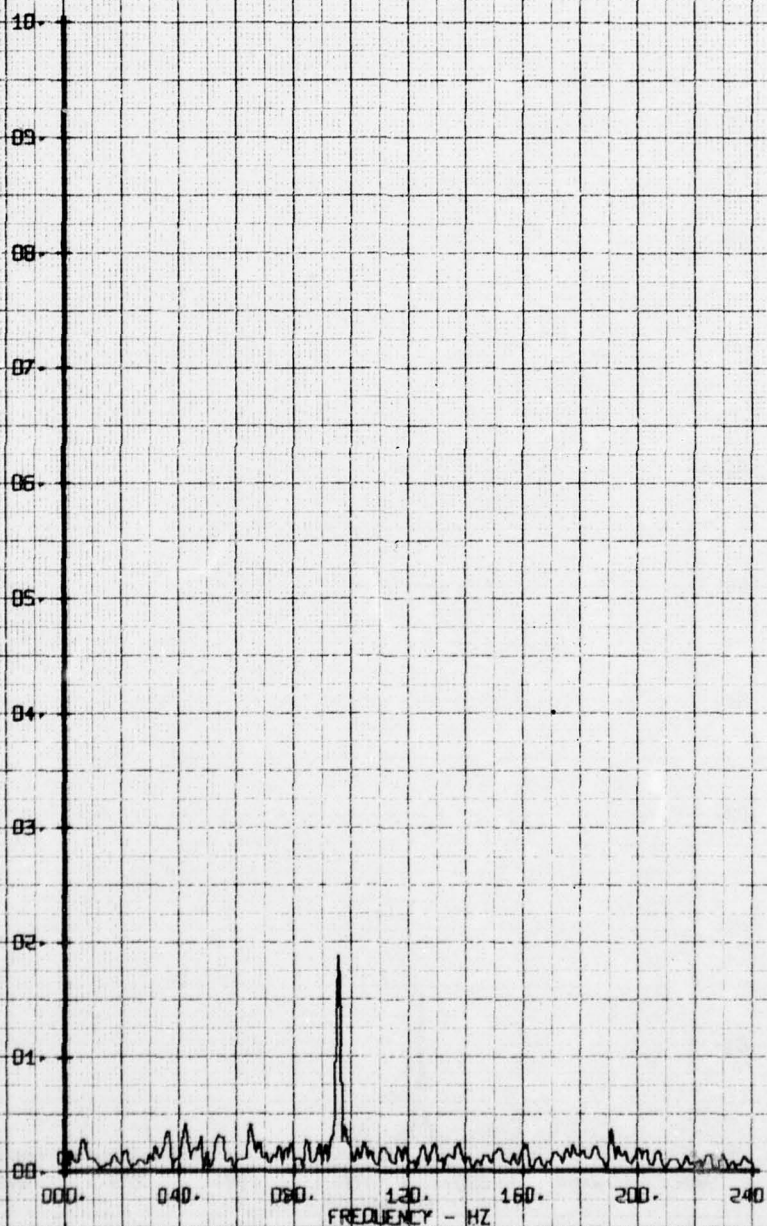
X-Y VELOCITY COMPONENT V-ALPHA



HDT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG: TRAVERSE BEHIND STAB.
RUN 115 TP 4

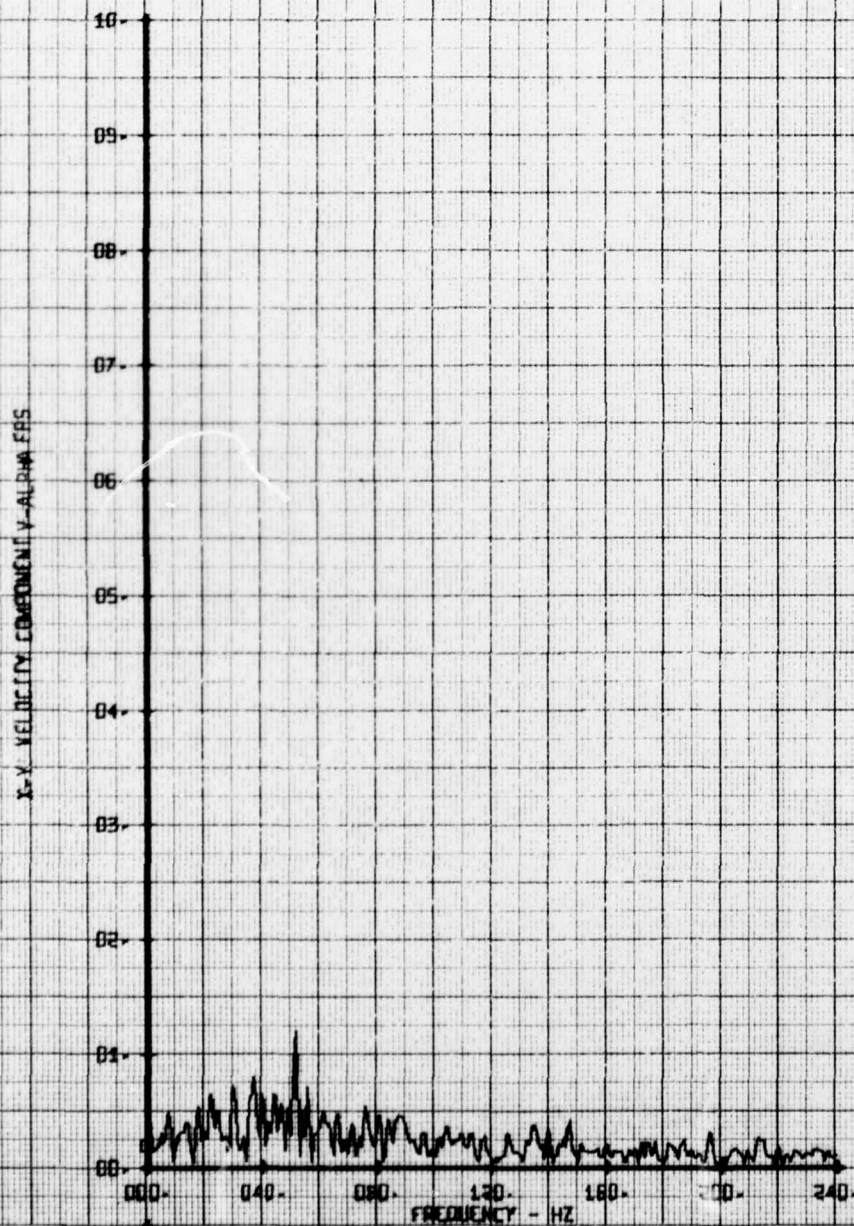
LEGEND
CH PARAMETER
66 V-ALPHA

X-Y VELOCITY COMPONENT V-ALPHA/FTS



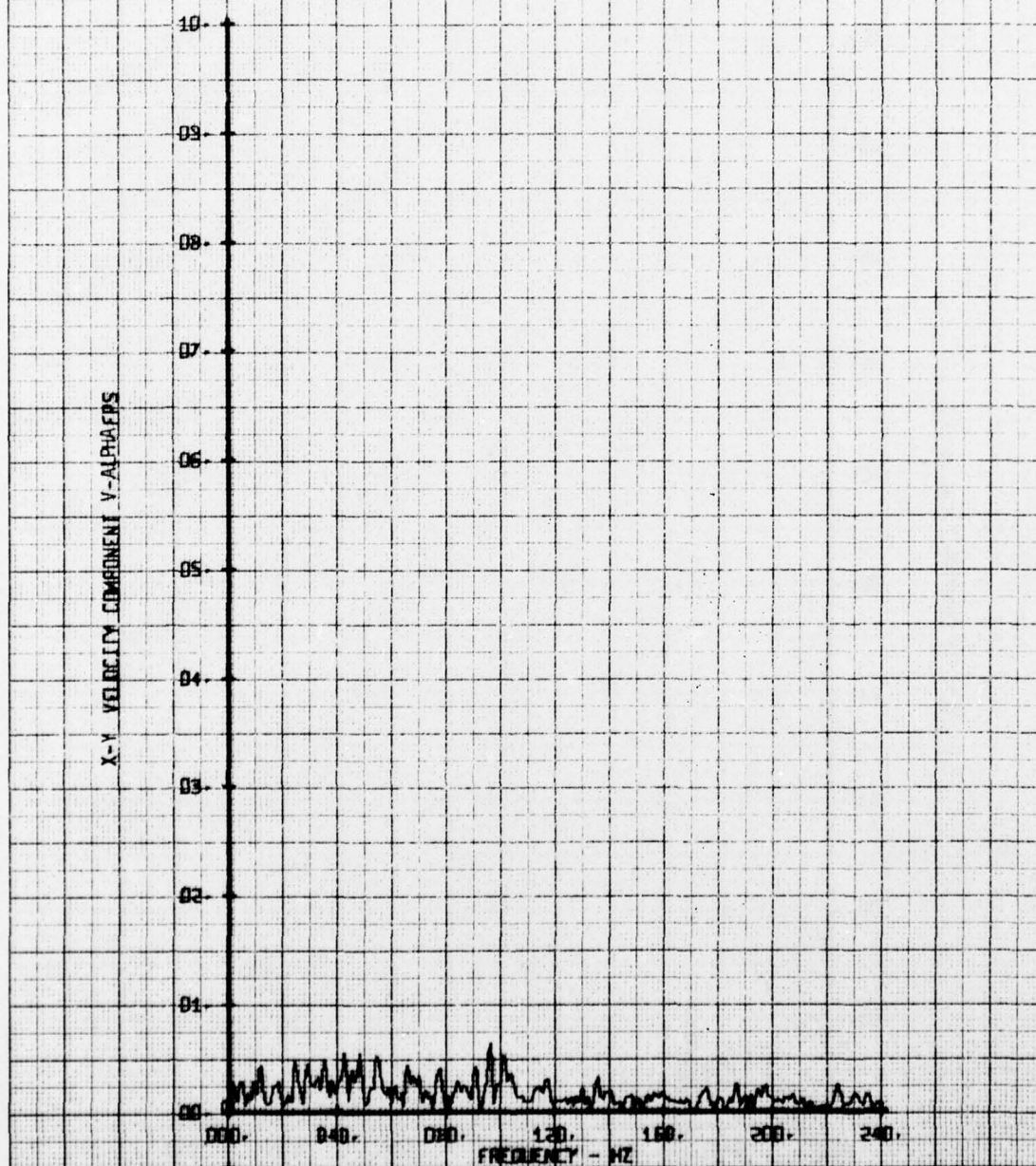
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE BEHIND STAB.
RUN 115 TP 6

LEGEND
CH. PARAMETER
66 V-ALPHA



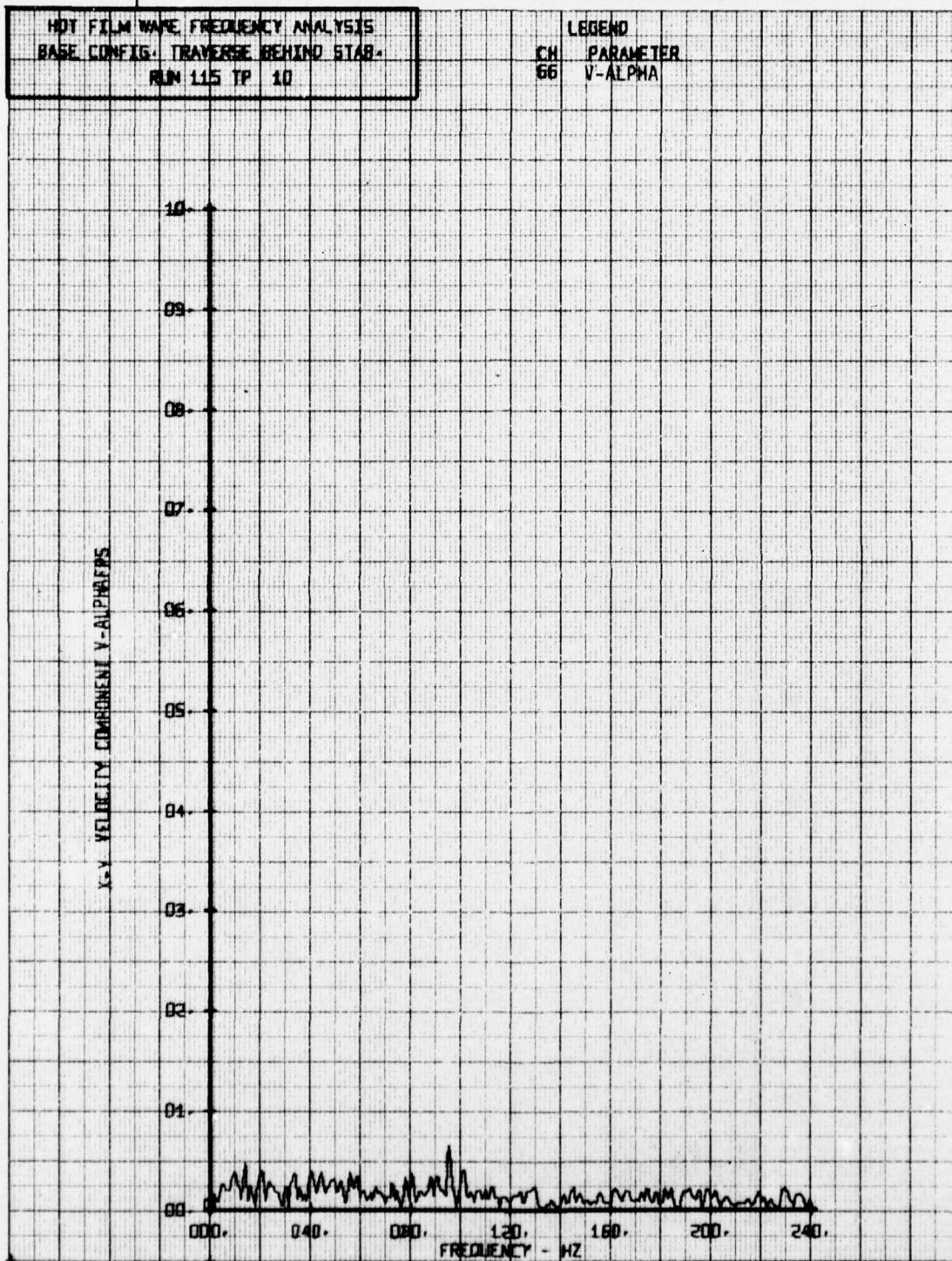
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE BEHIND STAB.
RUN 115 TP 9

LEGEND
CH 66 PARAMETER
V-ALPHA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE BEHIND STAR.
RUN 115 TP 10

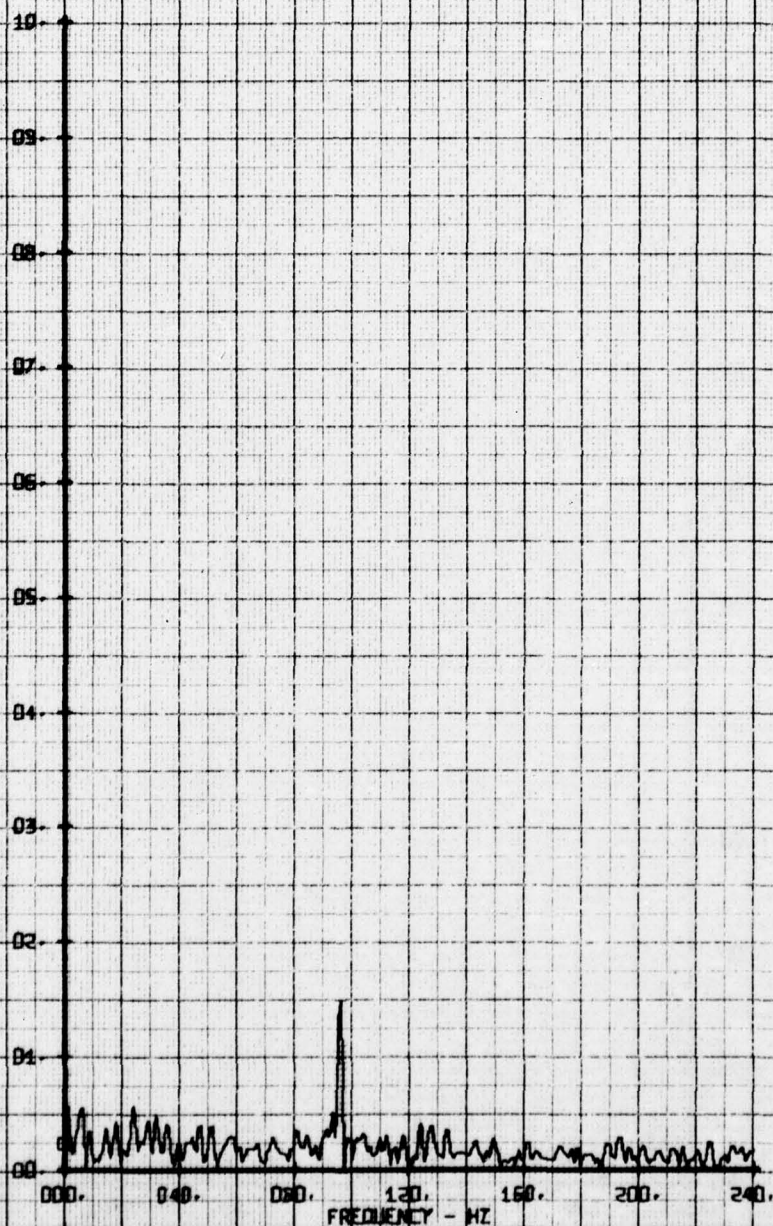
LEGEND
CH PARAMETER
66 V-ALPHA



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE BEHIND STAB.
RUN 115 TP 12

LEGEND
CH PARAMETER
66 V-ALPHA

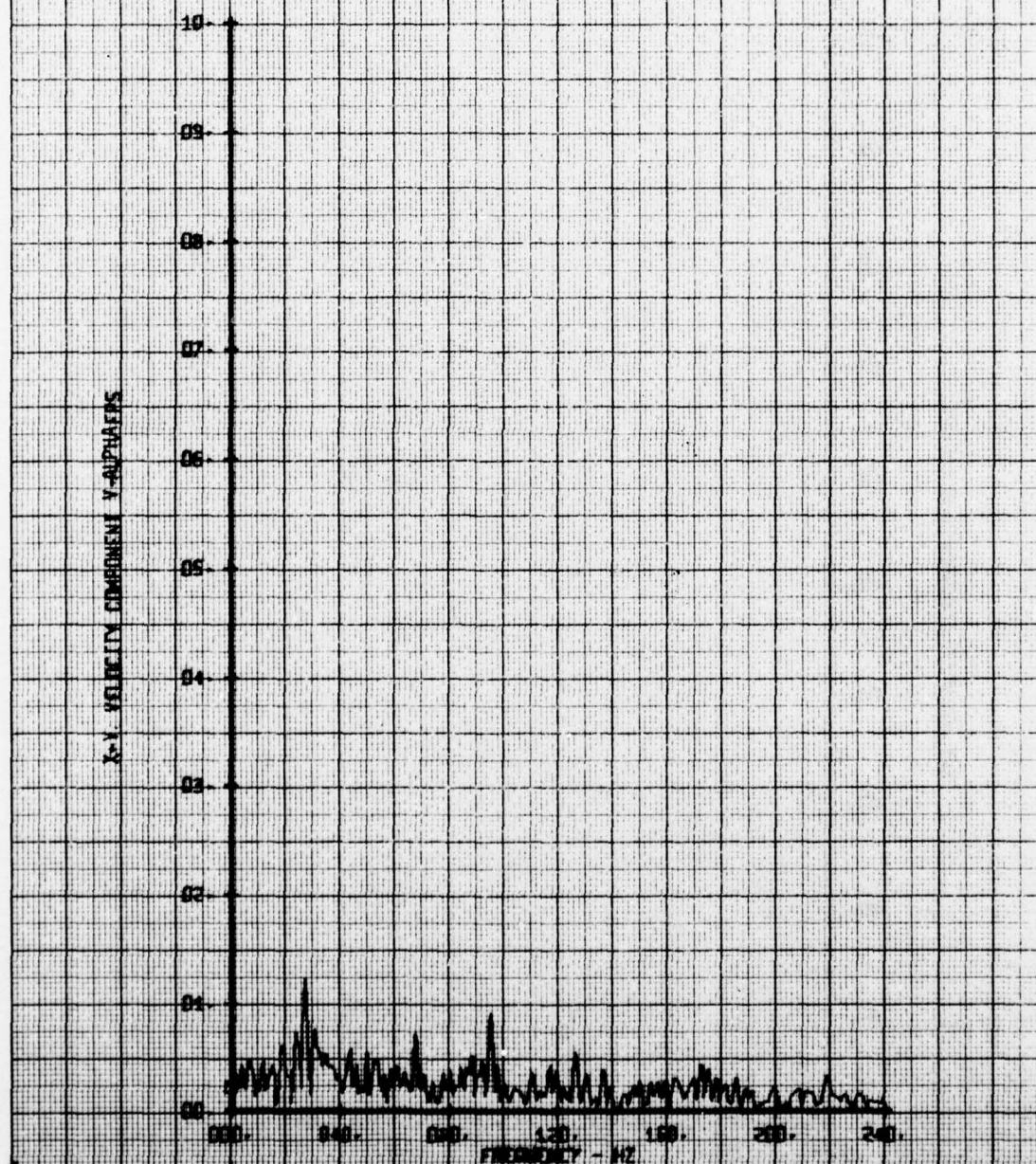
X-V VELOCITY COMPONENT V-ALPHAS



HDT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE BEHIND STAB.
RUN 115 TP 14

LEGEND
CH PARAMETER
66 V-ALPHA

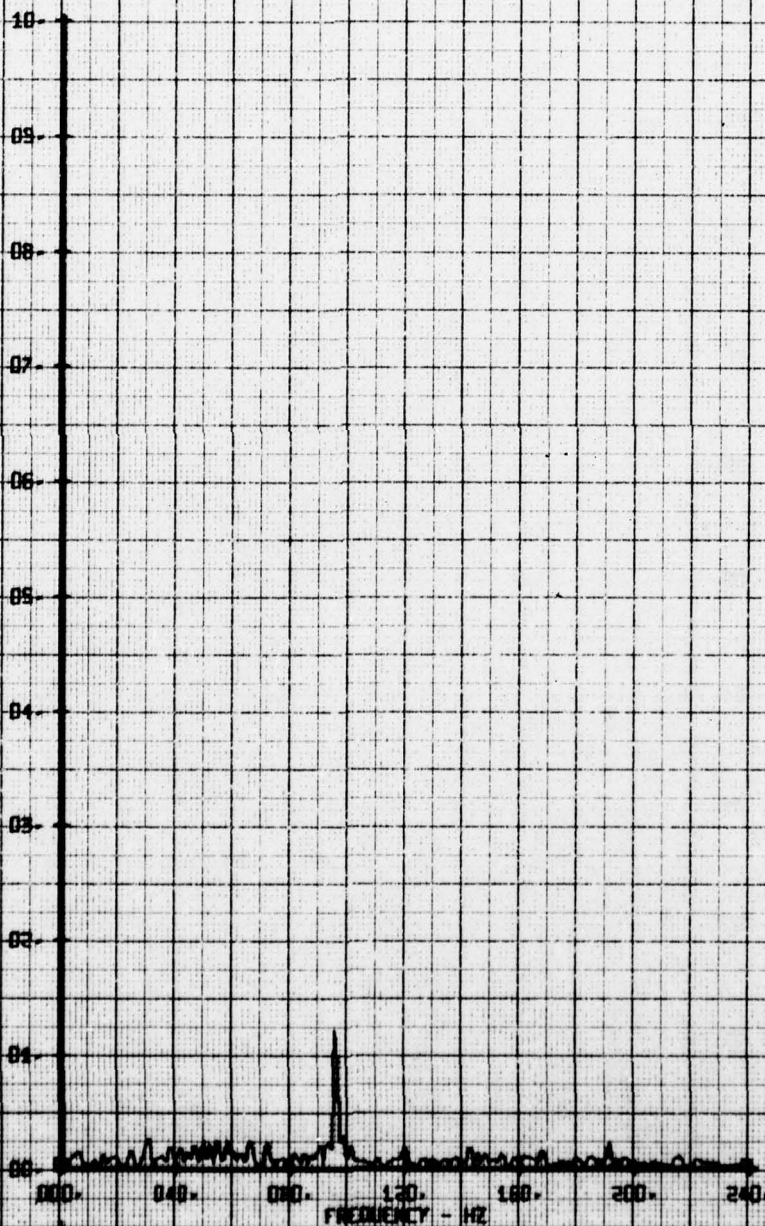
X-Y HOLDING COMPONENT V-ALPHAS



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE BEHIND STAR.
RUN 115 TP 15

LEGEND
CH PARAMETER
66 V-ALPHA

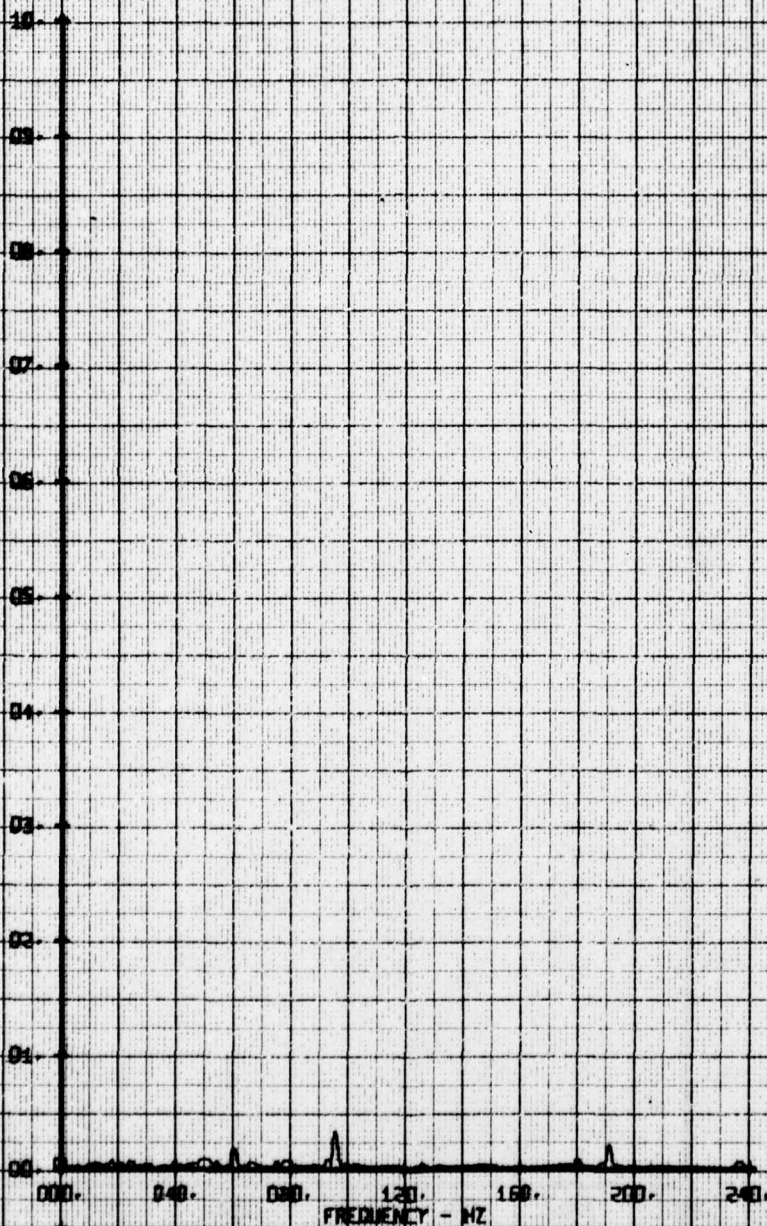
X-Y VELOCITY COMPONENT V-ALPHA RMS



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG: TRAVERSE BEHIND STAB.
RUN 115 TP 18

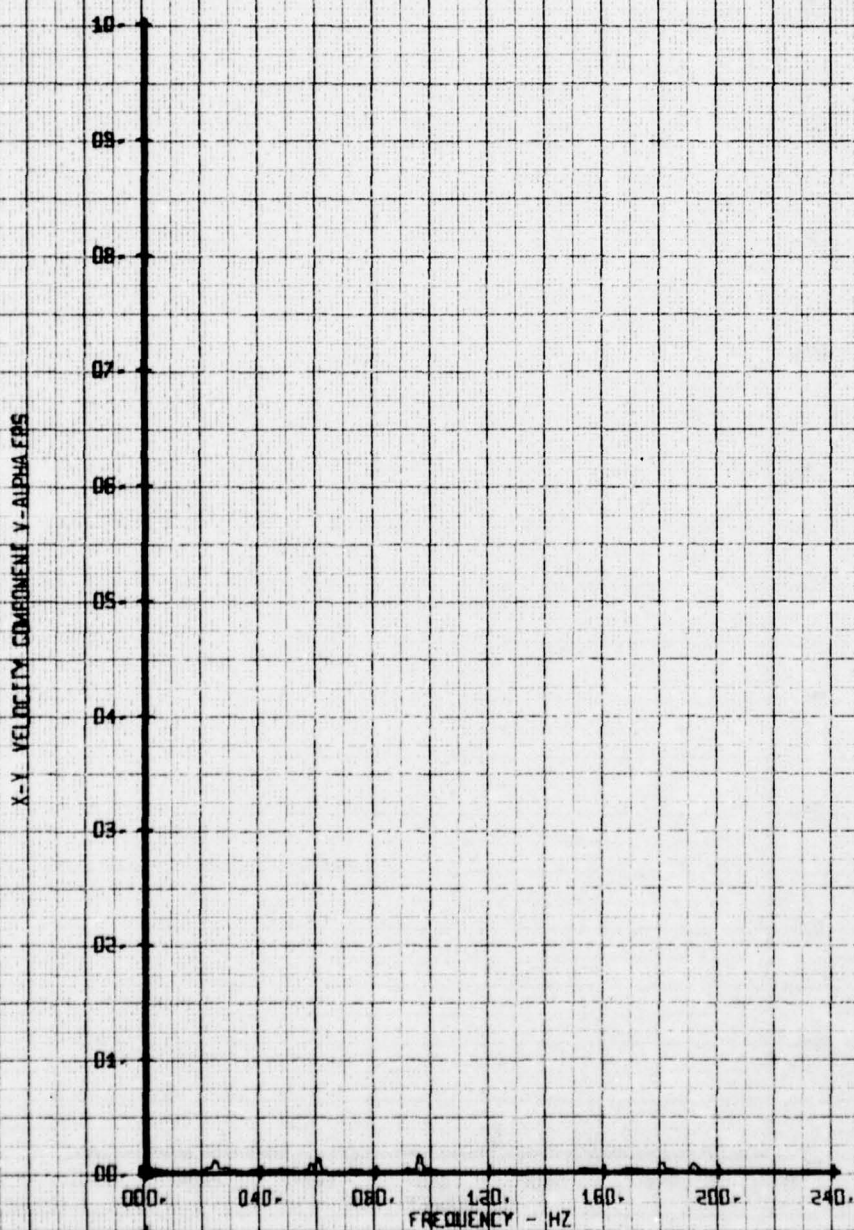
LEGEND
CH PARAMETER
66 V-ALPHA

X-Y VELOCITY COMPONENT V-ALPHA



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG: TRAVERSE BEHIND STAB.
RUN 115 TP 20

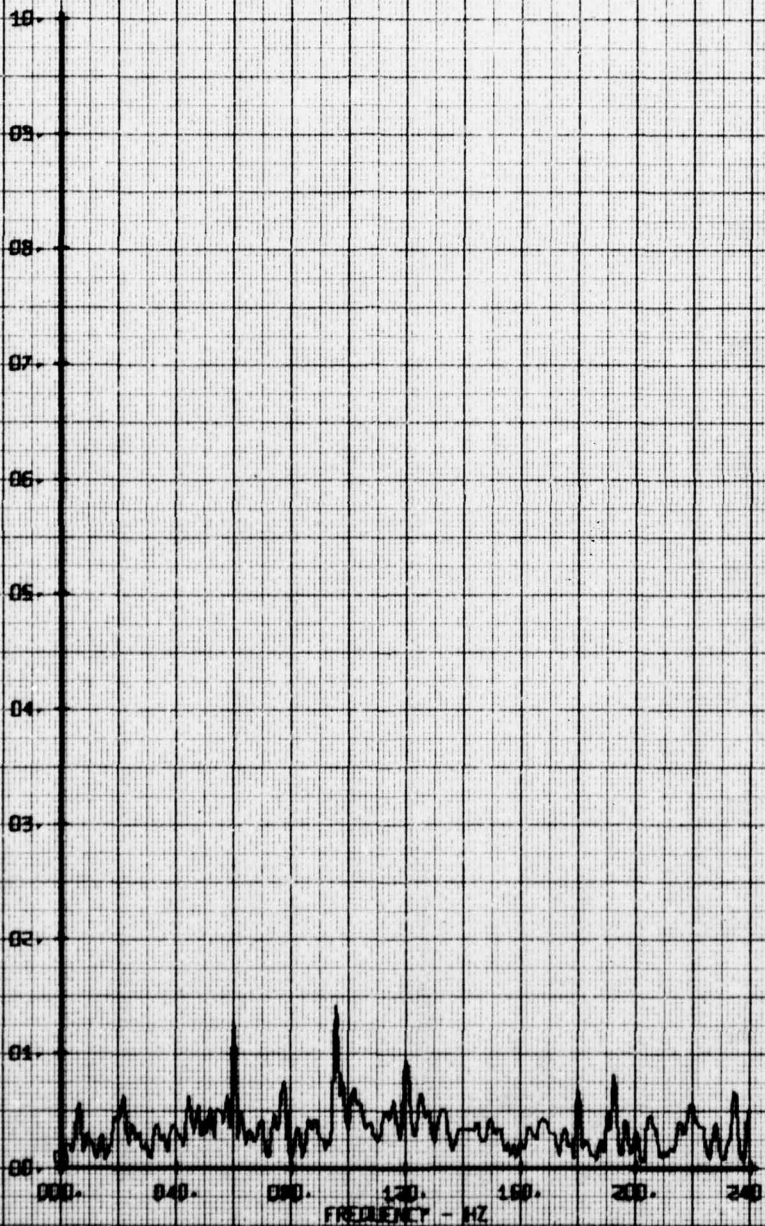
LEGEND
CH PARAMETER
66 V-ALPHA



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE BEHIND STAB.
RUN 115 TP 3

LEGEND
CH PARAMETER
65 V-BETA

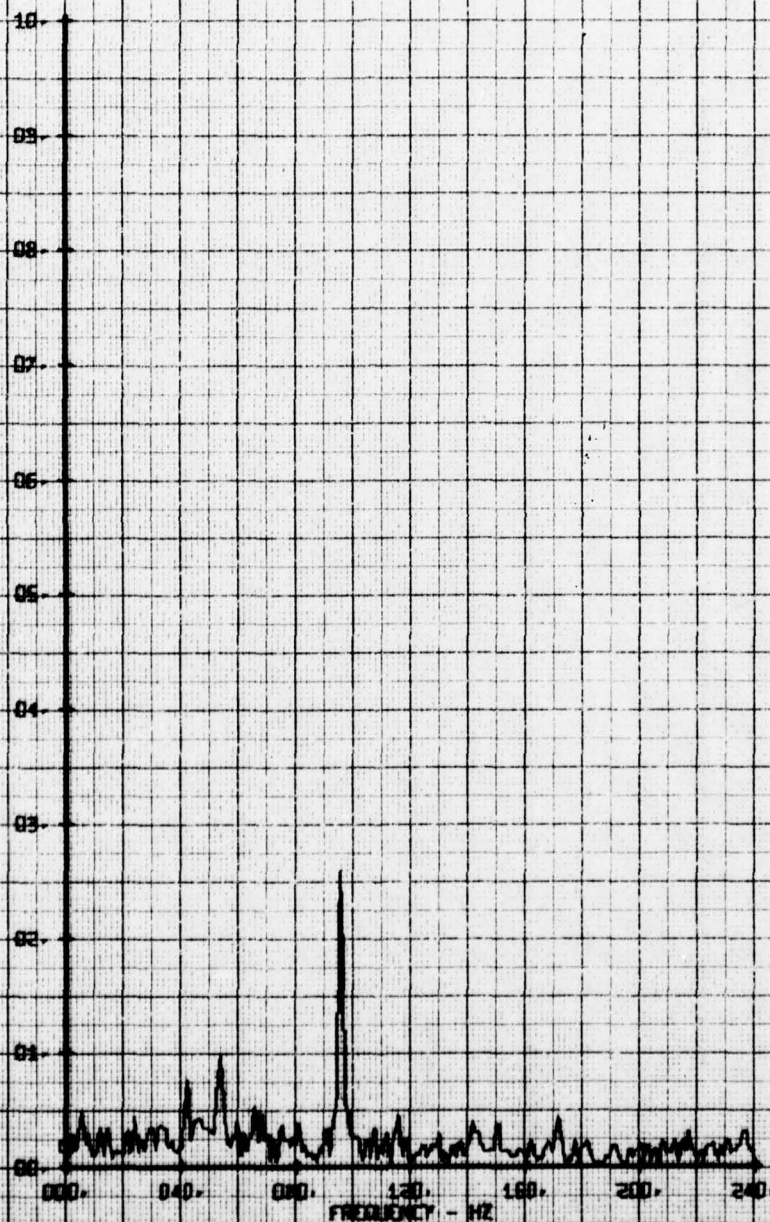
X-2 VELOCITY COMPONENT V-BETA FPS



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE BEHIND STAR-
RUN 115 TP 4

LEGEND
CH PARAMETER
65 V-BETA

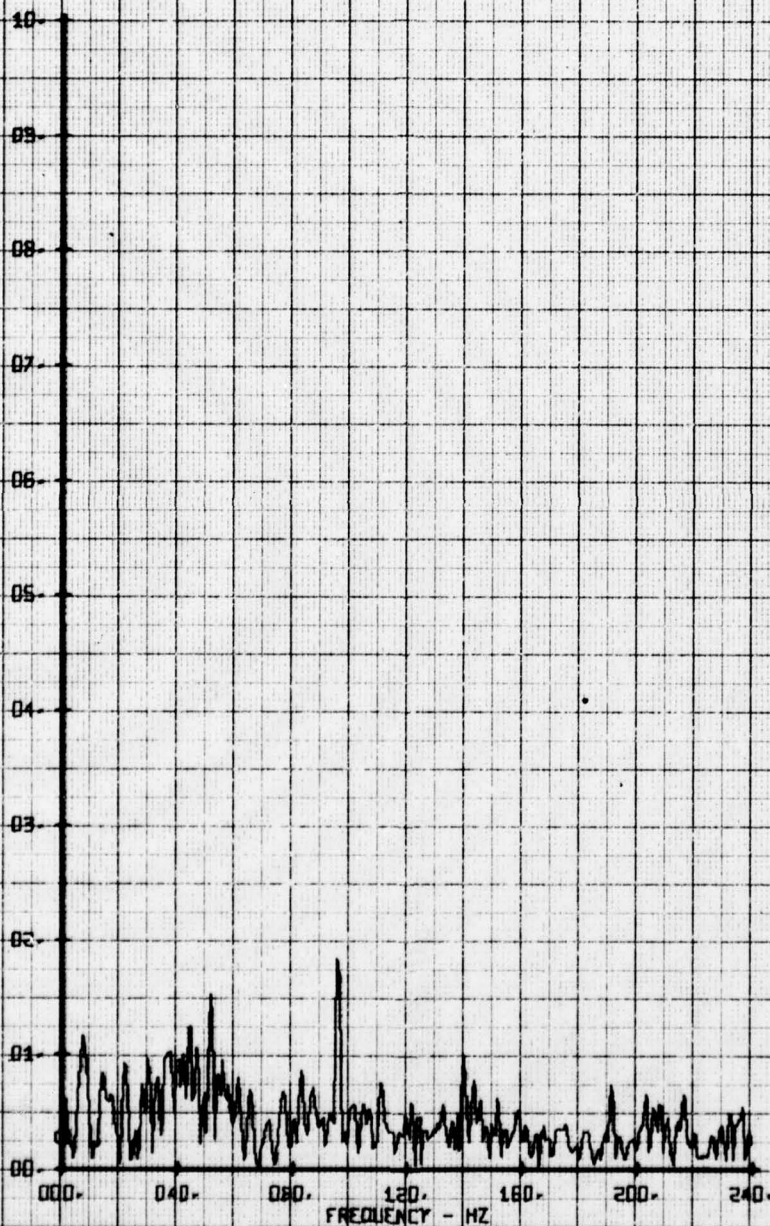
X-7 VELOCITY COMPONENT V-BETA FPS



HOT FILM WIRE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE BEHIND STAR
RUN 115 TP 6

LEGEND
CH PARAMETER
65 V-BETA

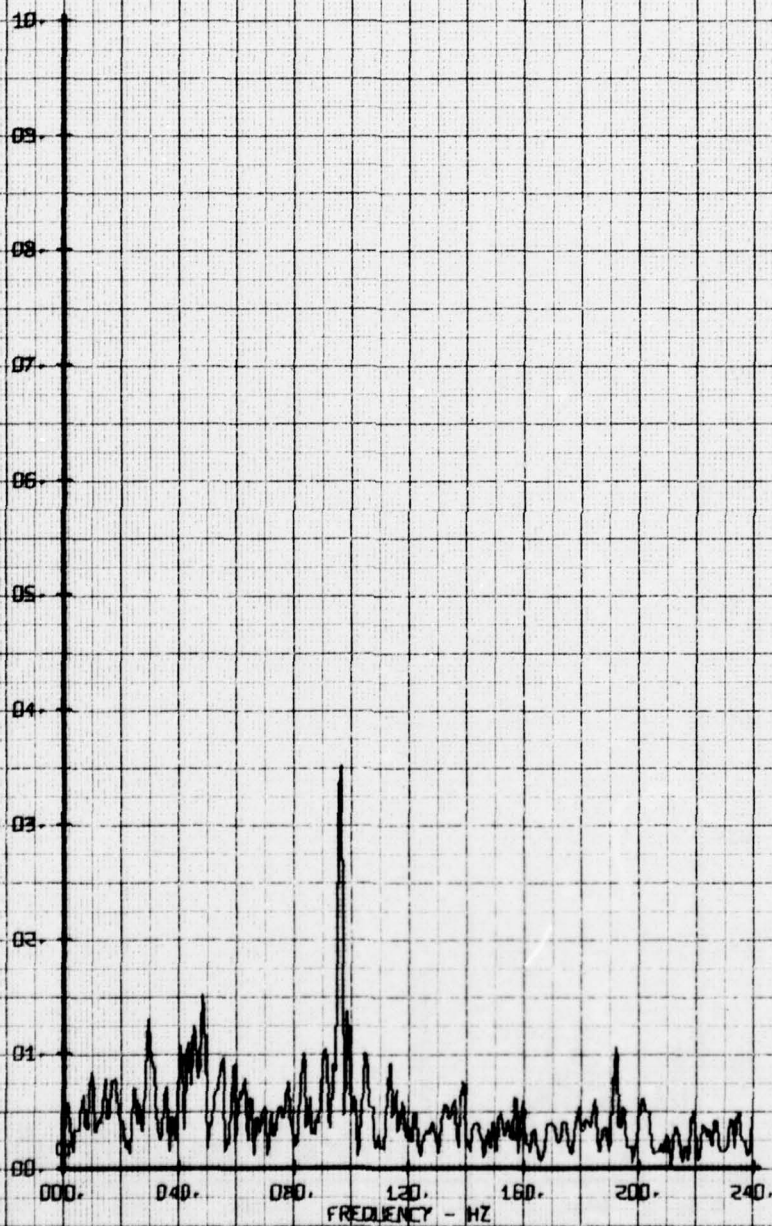
X-Z VELOCITY COMPONENT V-BETA EPS



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE BEHIND STAR-
RUN 115 TP 9

LEGEND
CH PARAMETER
65 V-BETA

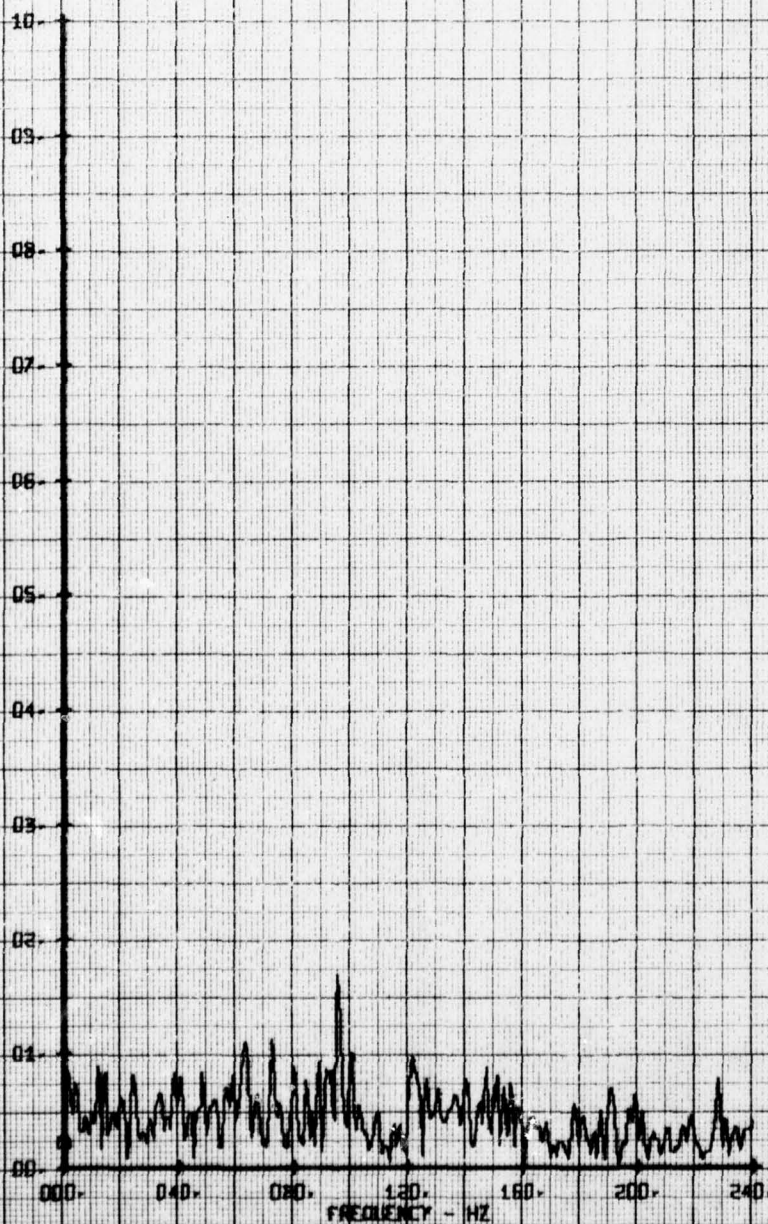
X-Z VELOCITY COMPONENT V-BETA FPS



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE BEHIND STAB.
RUN 115 TP 1D

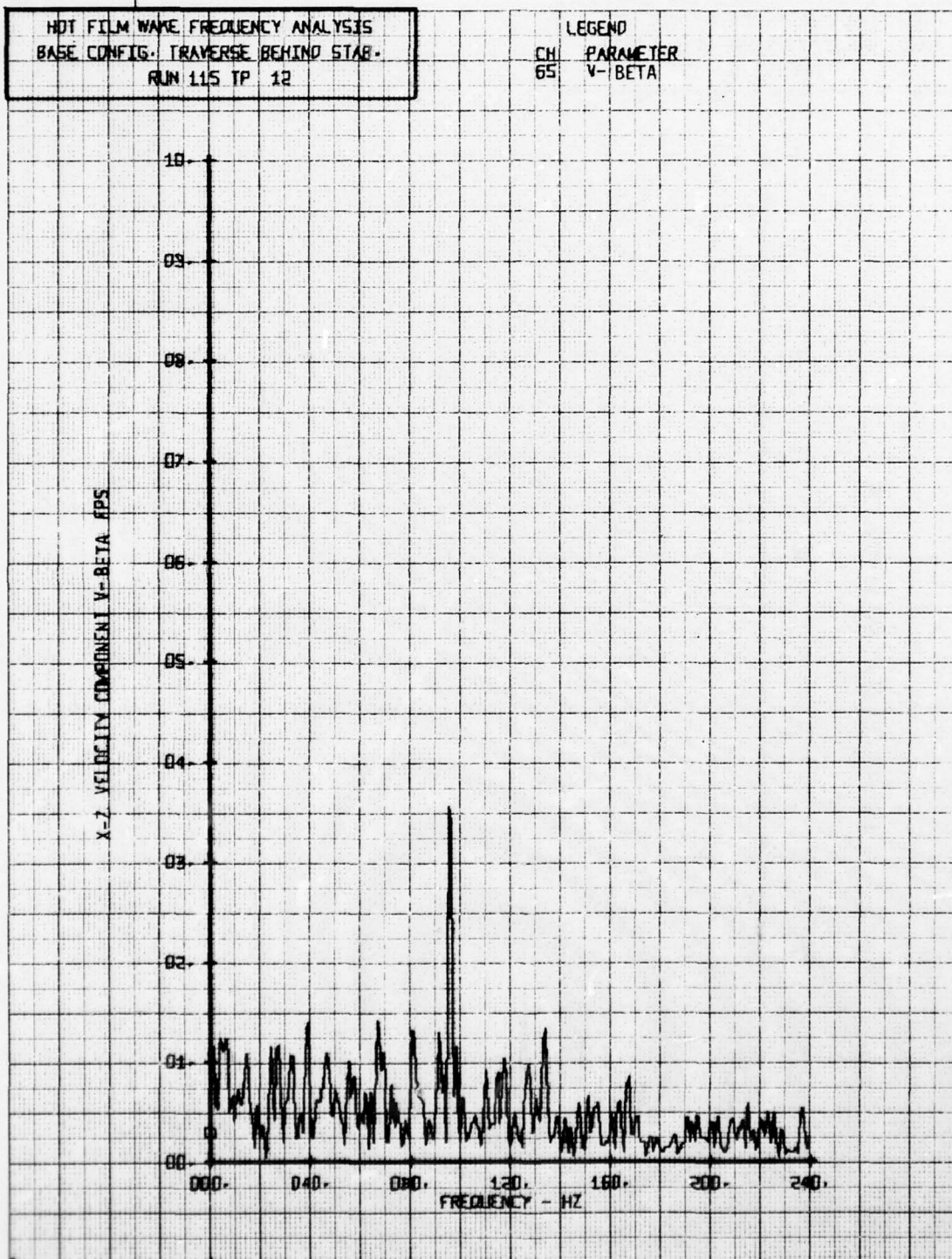
LEGEND
CH 65 PARAMETER
V- BETA

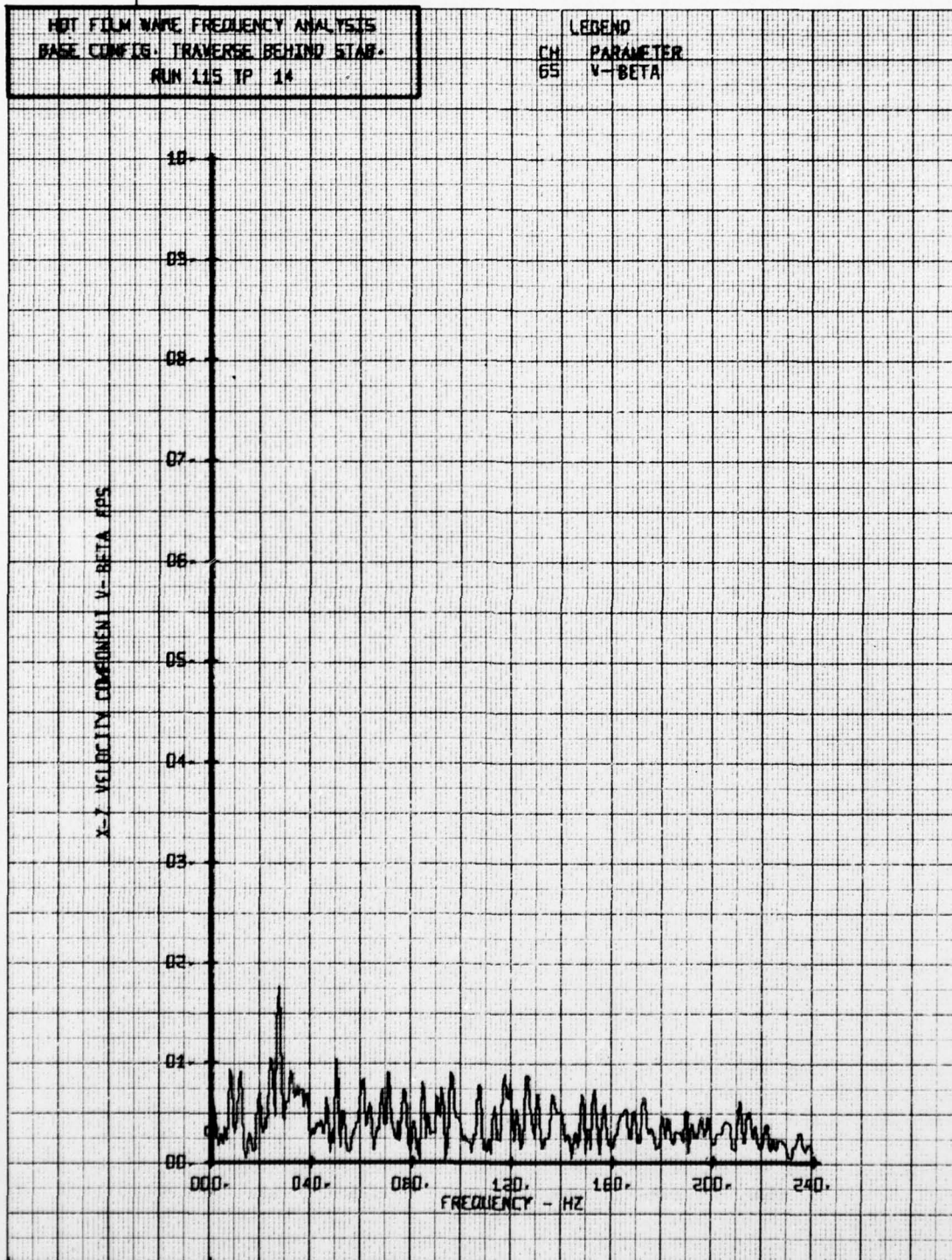
X-Z VELOCITY COMPONENT V- BETA FPS



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE BEHIND STAR.
RUN 115 TP 12

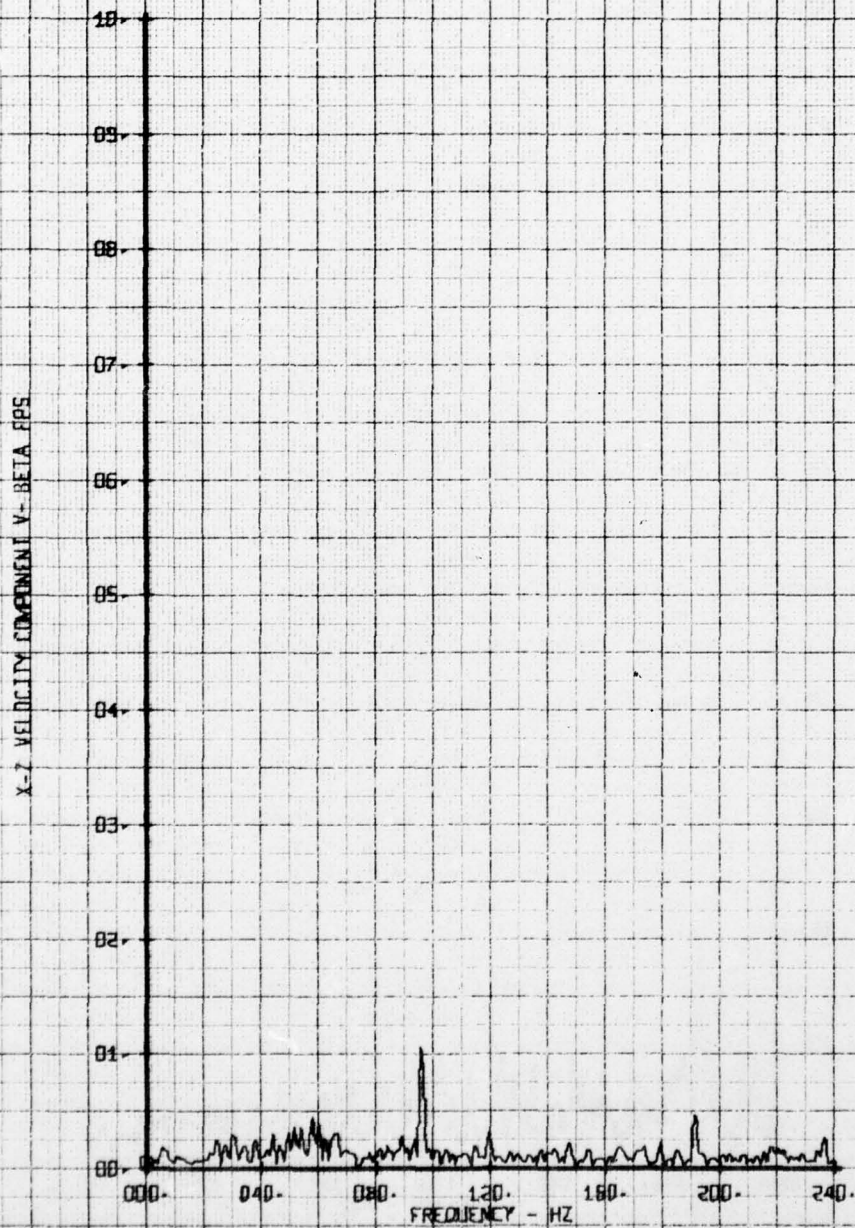
LEGEND
CH PARAMETER
65 V-BETA





HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE BEHIND STAR.
RUN 115 TP 16

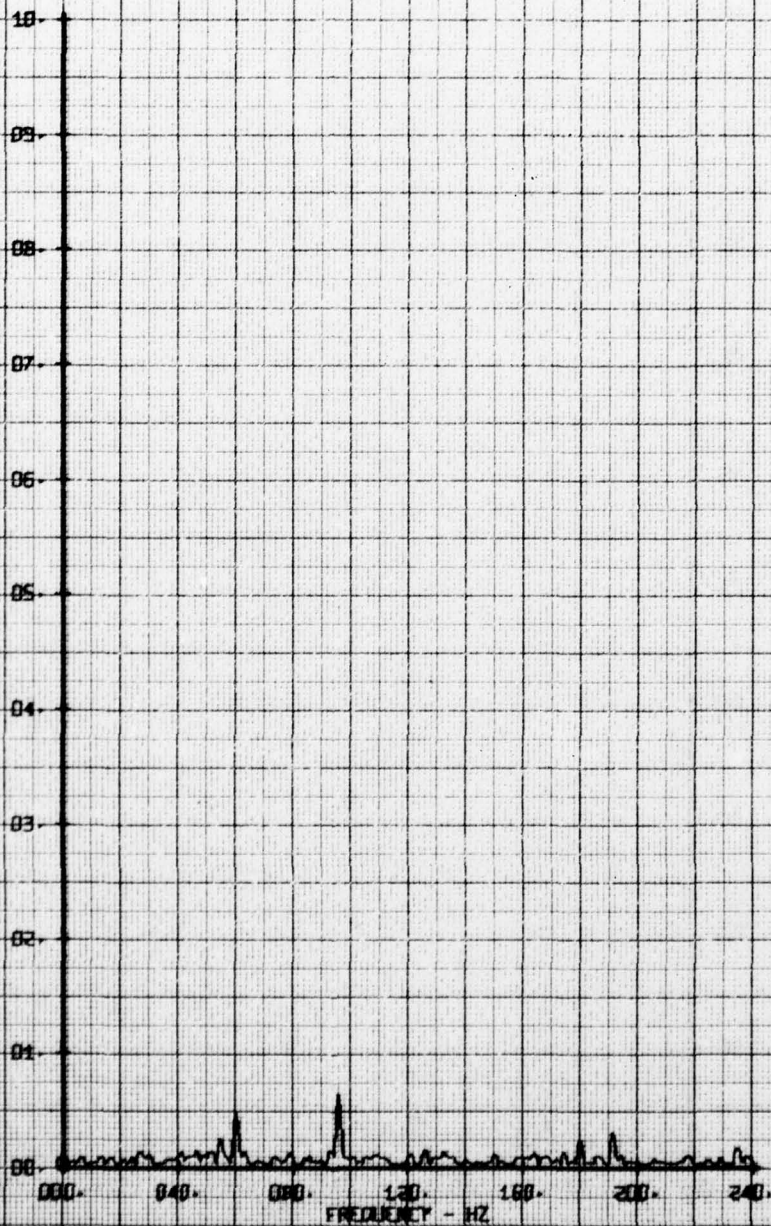
LEGEND
CH PARAMETER
65 V-BETA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE BEHIND STAB.
RUN 115 IP 18

LEGEND
CH PARAMETER
65 V-BETA

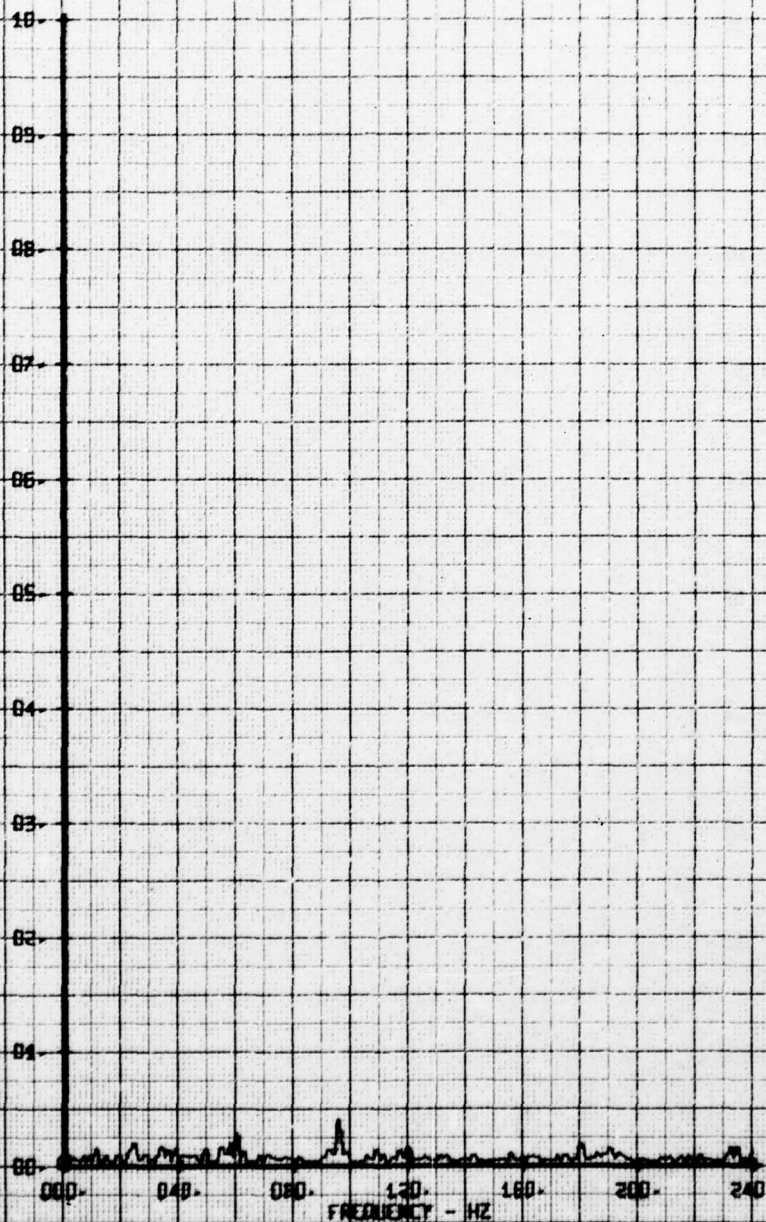
X-2 VELOCITY COMPONENT V-BETA FPS



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG: TRAVERSE BEHIND STAR.
RUN 145 TP 20

LEGEND
CH PARAMETER
65 V-BETA

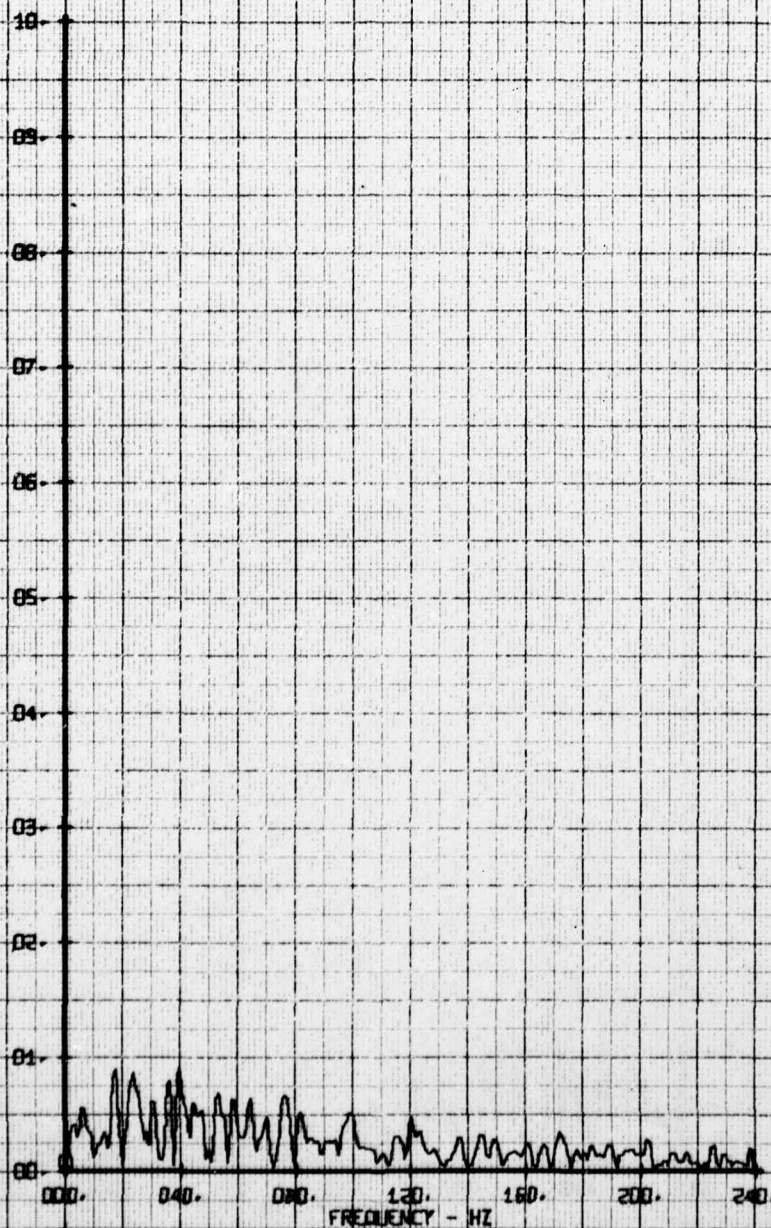
X-7 VELOCITY COMPONENT V-BETA FPS



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE LEFT OF STAB.
RUN 118 TP 7

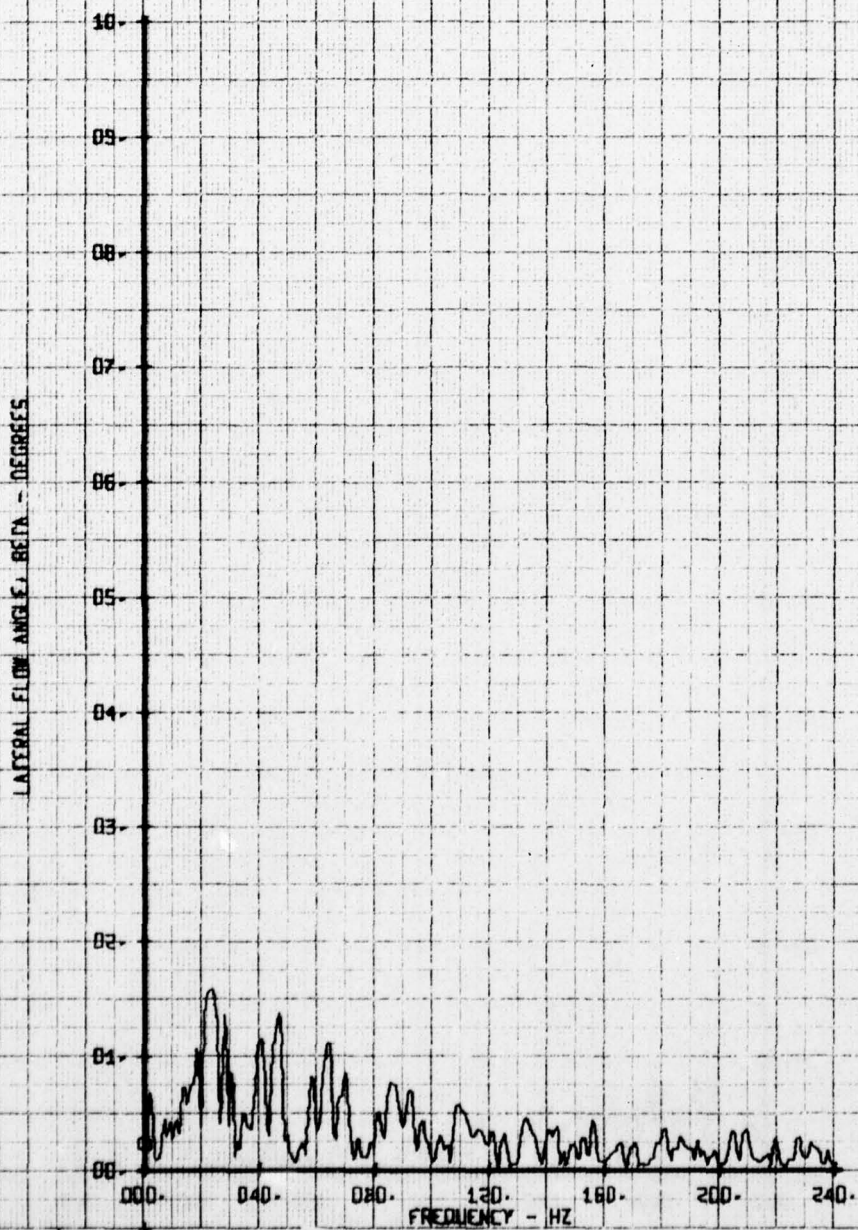
LEGEND
CH PARAMETER
65 ALPHA

VERTICAL FLOW ANGLE, ALPHA - DEGREES



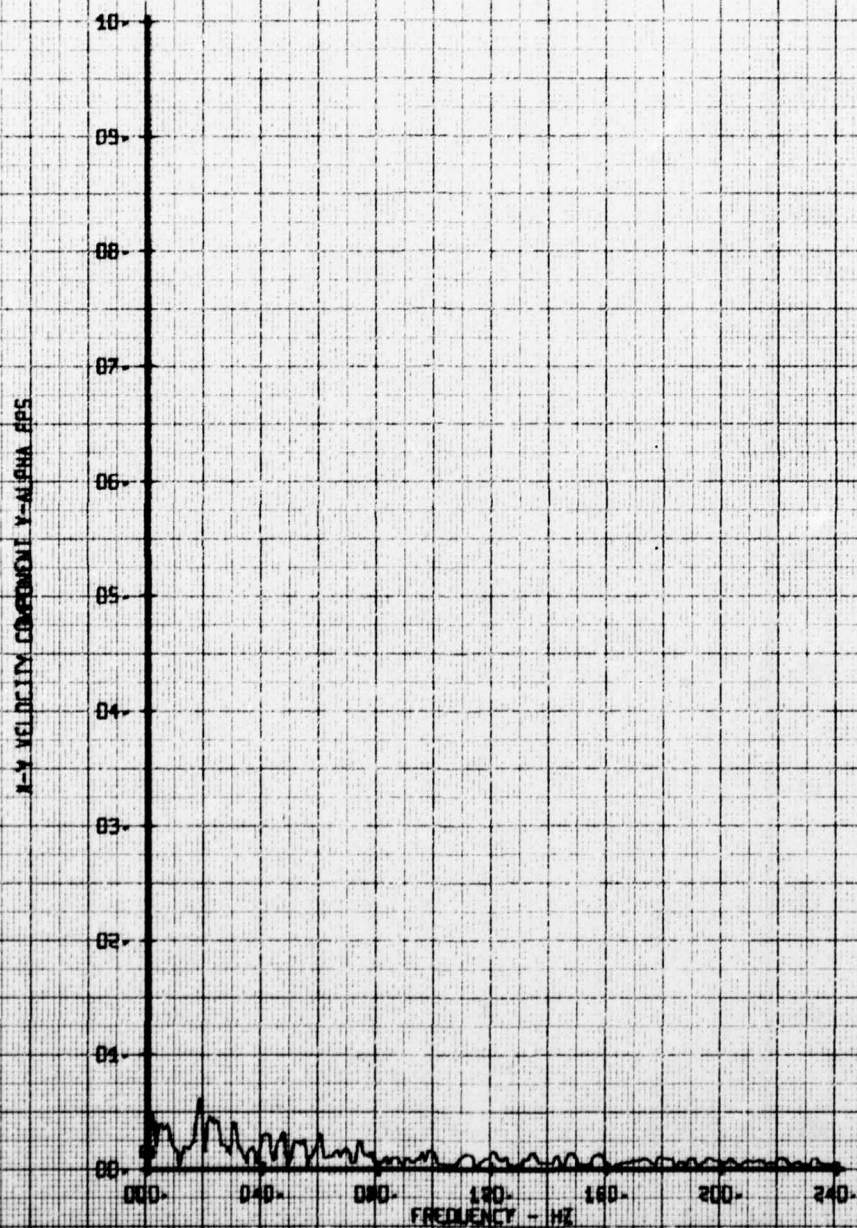
HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE LEFT OF STAB.
RUN 116 TP 7

LEGEND
CH 66
PARAMETER
BETA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE LEFT OF STAR.
RUN 116 IP 7

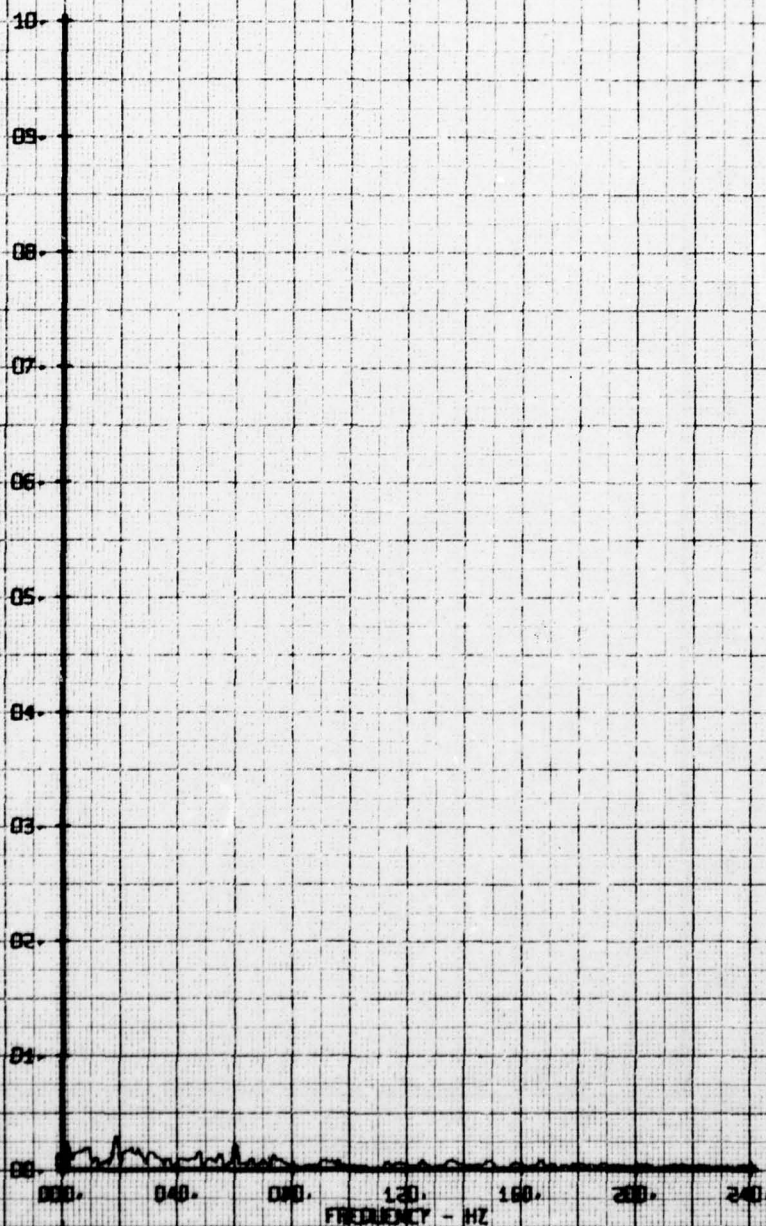
LEGEND
CH 65
PARAMETER
V-ALPHA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE LEFT OF STAB.
RUN 116 TP 7

LEGEND
CH 66 PARAMETER
V-BETA

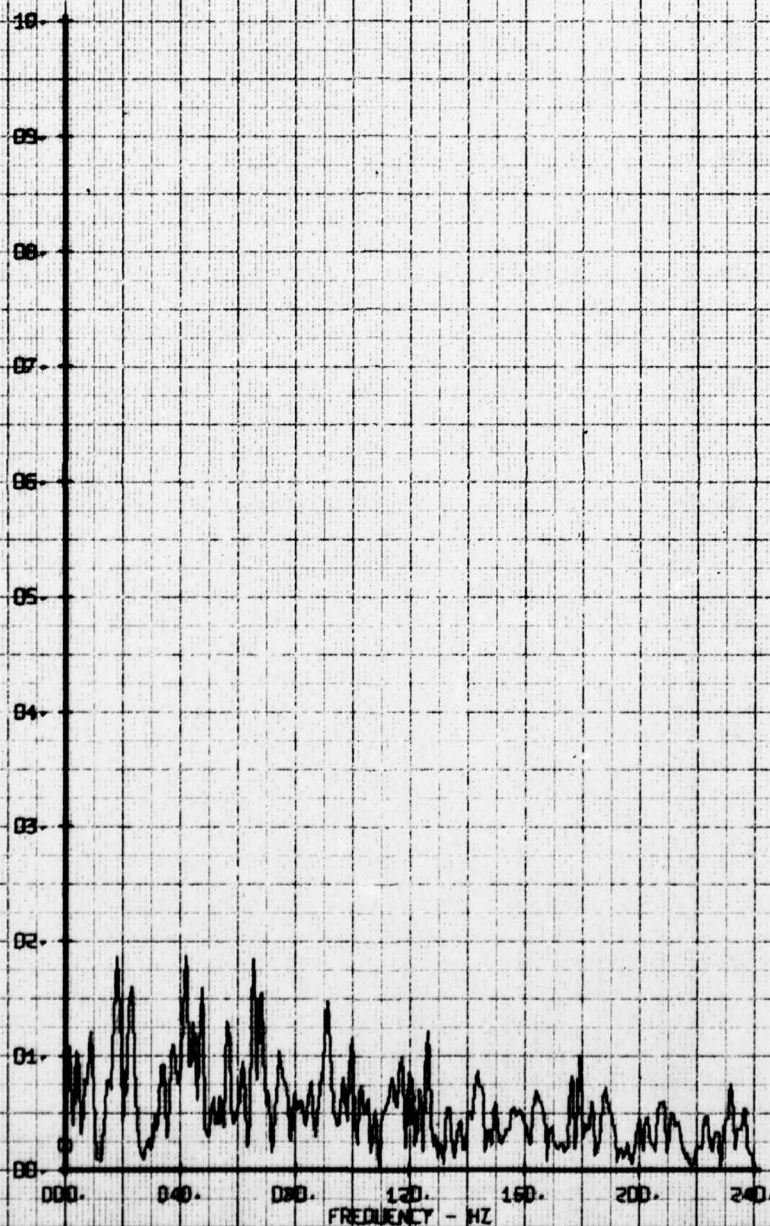
X-2 VELOCITY COMPONENT V-BETA FPS



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONVEY. TRAVERSE LEFT OF STAR.
RUN 117 TP 2

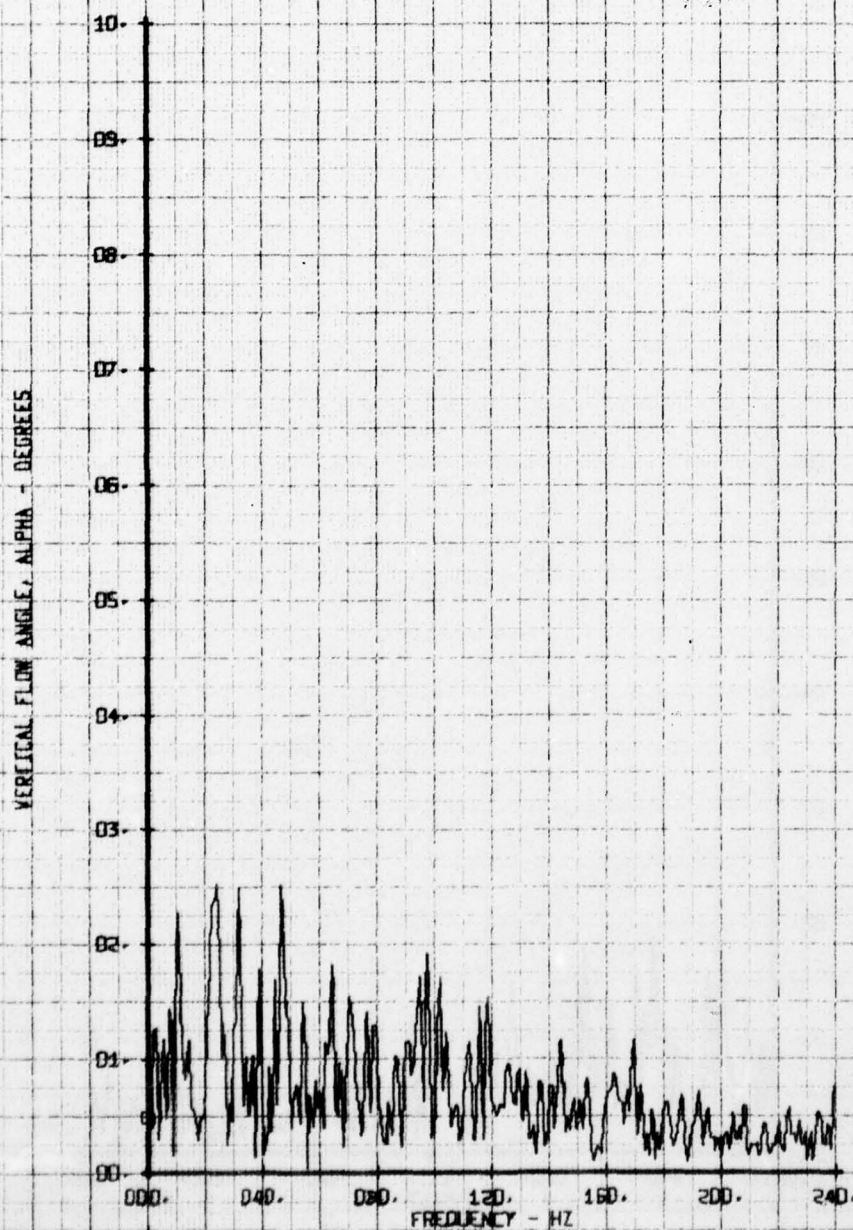
LEGEND
CH 65
PARAMETER
ALPHA

VERTICAL FLOW ANGLE, ALPHA - DEGREES



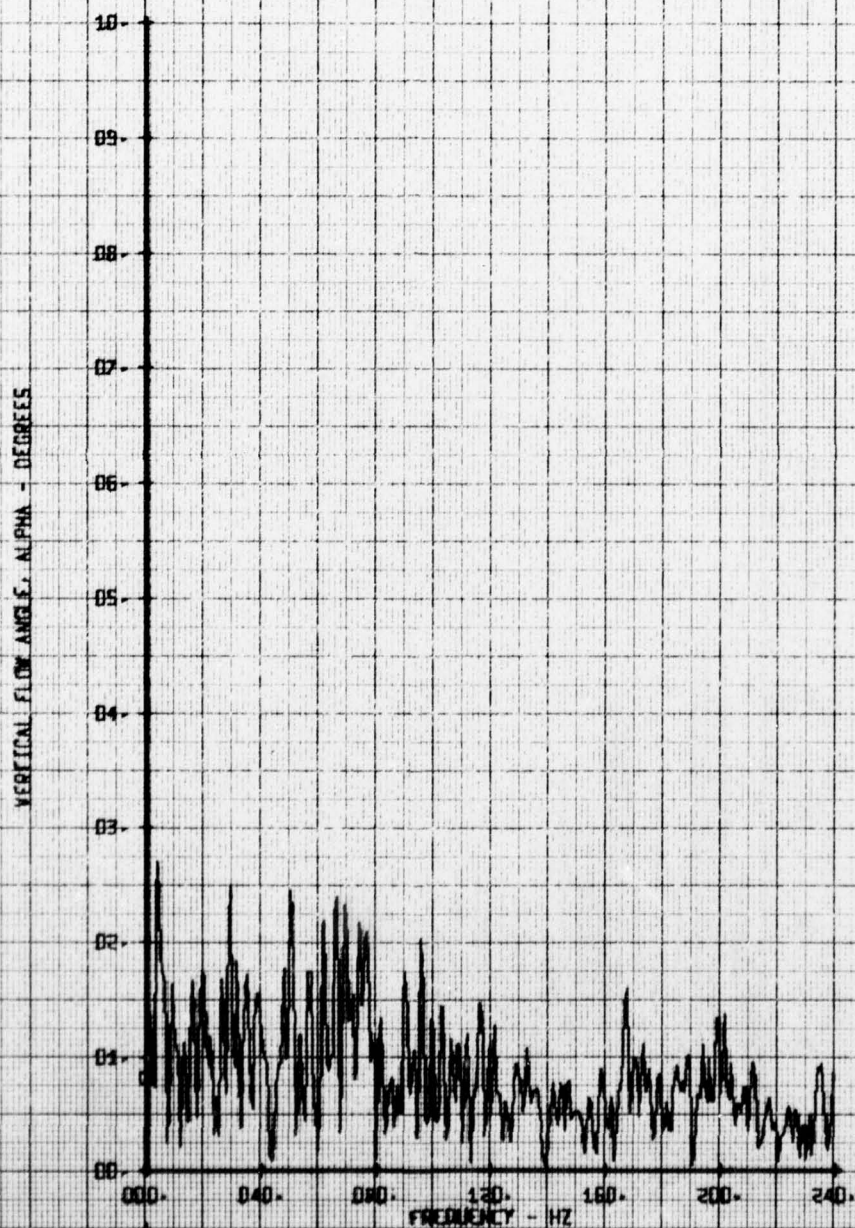
HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE LEFT OF STAB.
RUN 117 TP 4

LEGEND
CH 65 PARAMETER
ALPHA



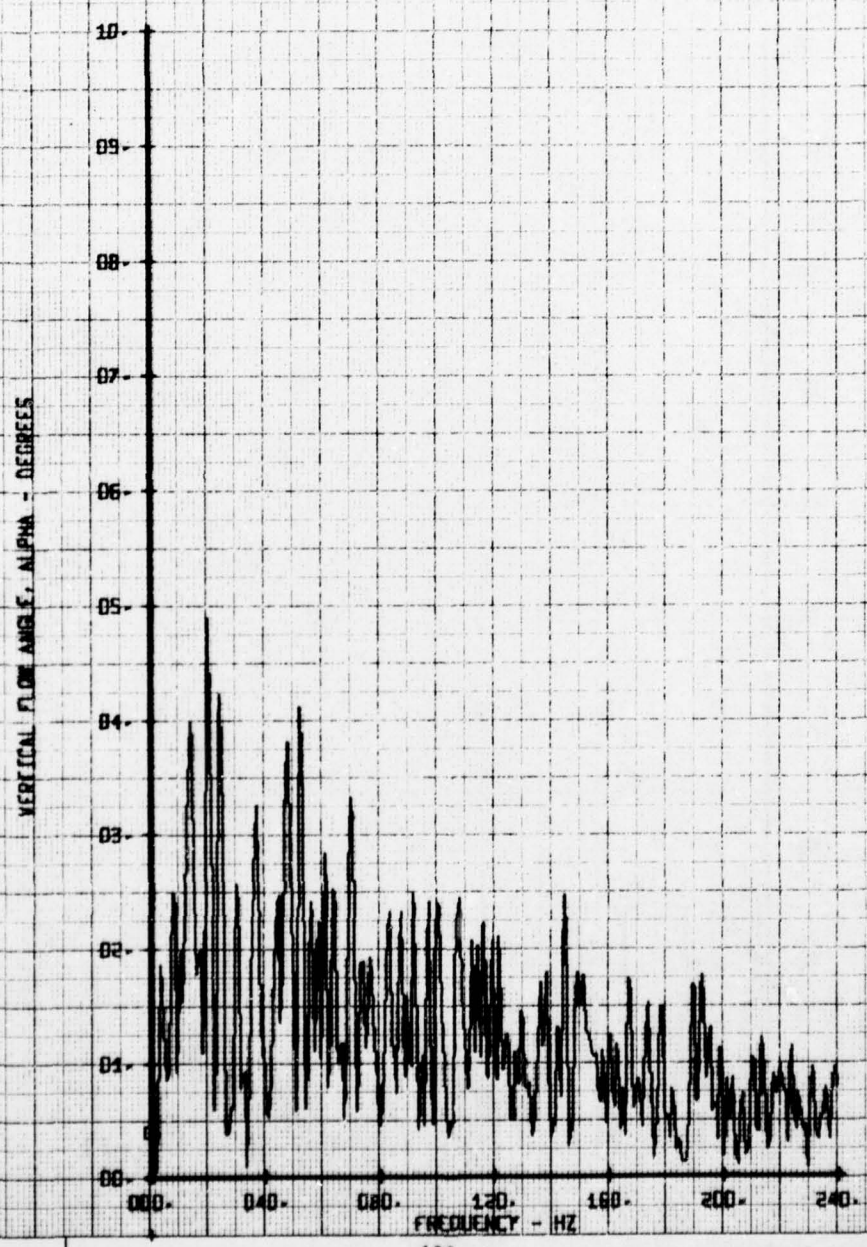
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE LEFT OF STAB.
RUN 117 TP 6

LEGEND
CH 65 PARAMETER
ALPHA



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE LEFT OF STAB.
RUN 117 TP 10 .

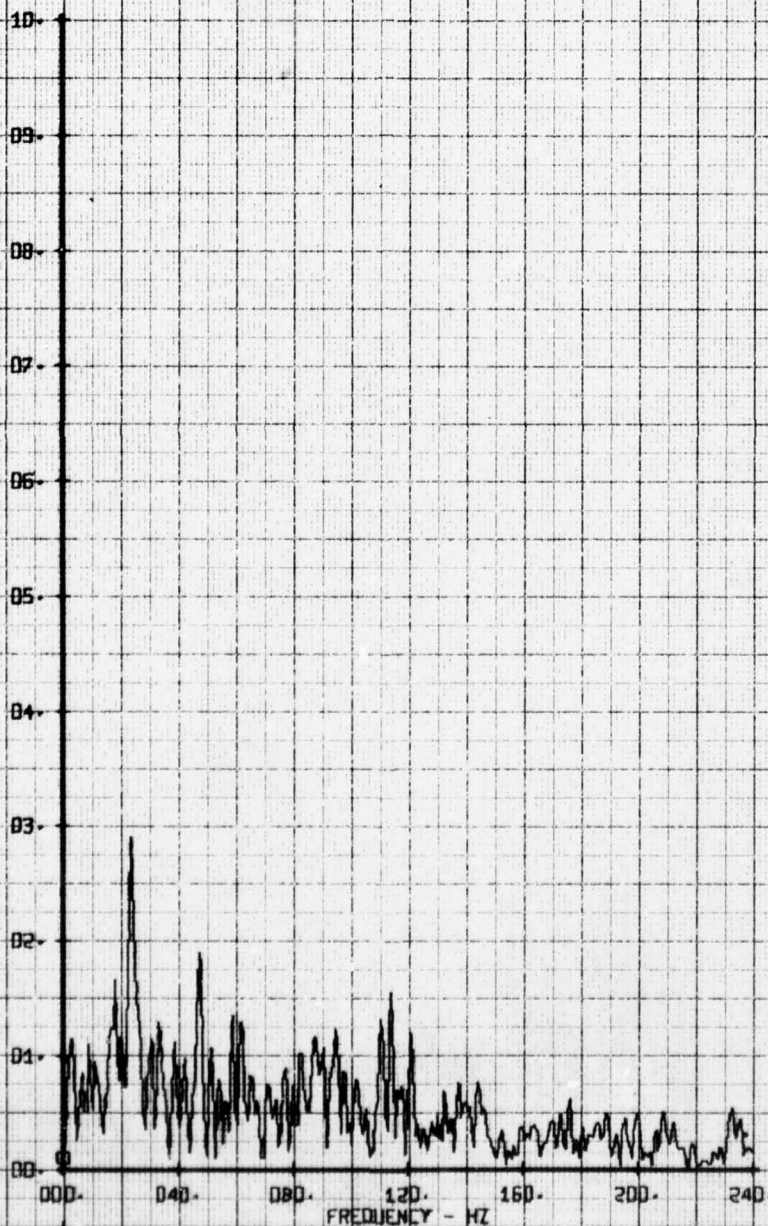
LEGEND
CH 65 PARAMETER
 ALPHA



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE LEFT OF STAB.
RUN 117 TP 2

LEGEND
CH 56
PARAMETER
BETA

LATERAL FLOW ANGLE, BETA - DEGREES



AD-A063 243

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F/6 1/3

INTERACTIONAL AERODYNAMICS OF THE SINGLE ROTOR HELICOPTER CONFI--ETC(U)

SEP 78 P F SHERIDAN

DAAJ02-77-C-0020

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USARTL-TR-78-236

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3 OF 4

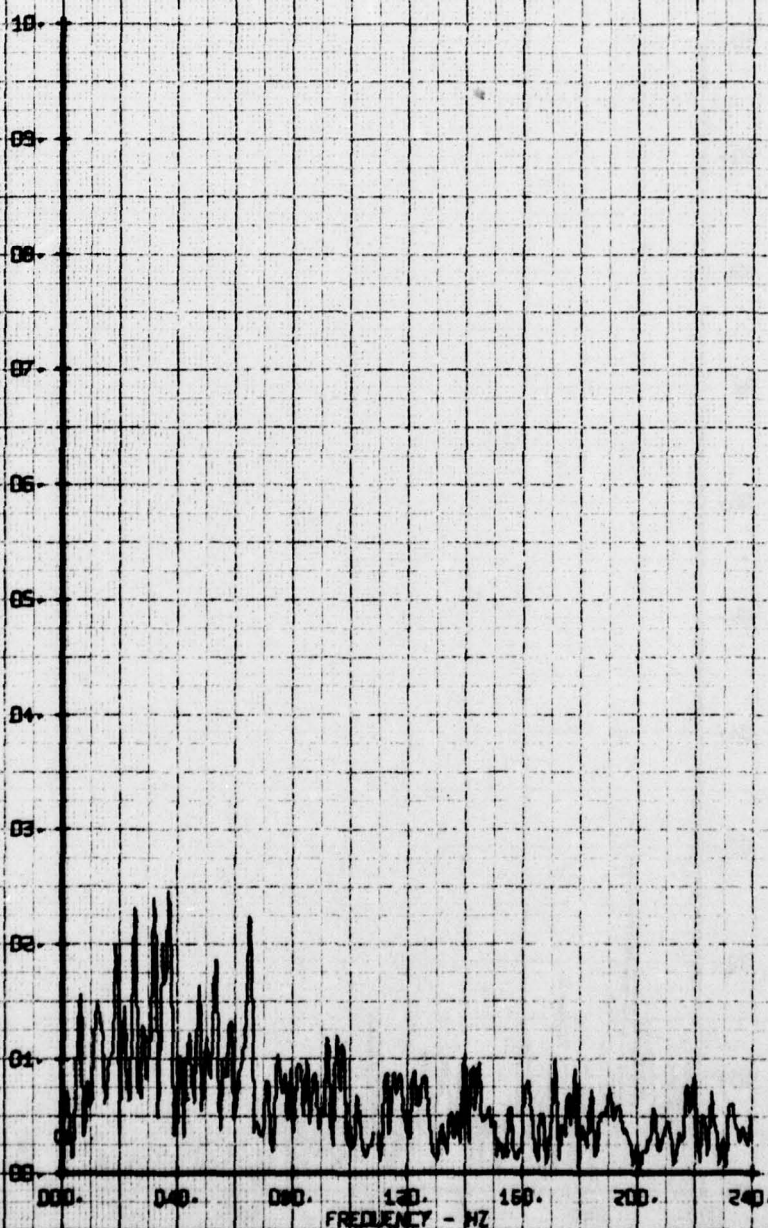
AD
A063243



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONF: TRAVERSE LEFT OF STAR-
RUN 117 TP 4

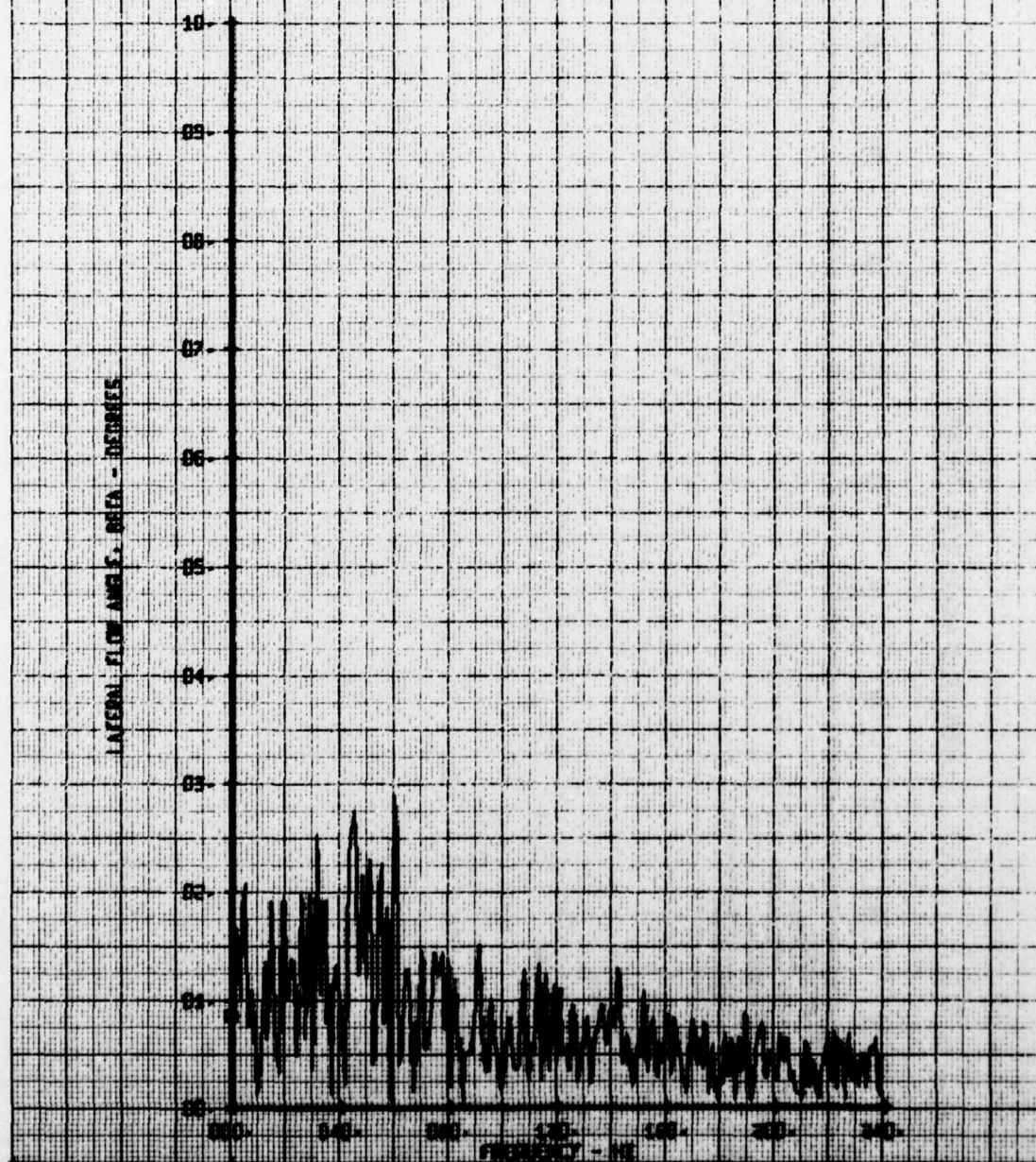
LEGEND
CH PARAMETER
66 BETA

LATERAL FLOW ANGLE, BETA - DEGREES



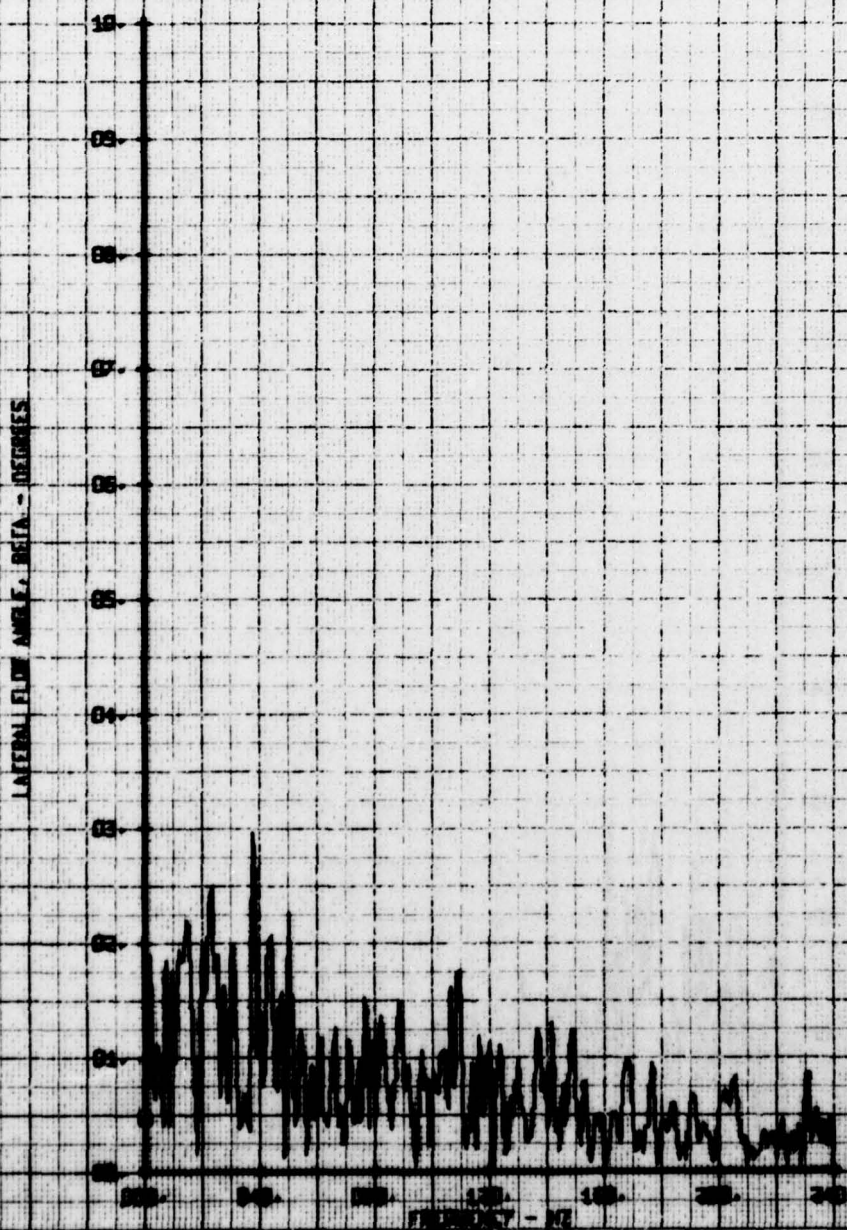
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BASE CONFIG. TRAVERSE LEFT OF STAR.
RUN 117 TP 6

LEGEND
CH 66
PARAMETER
BETA



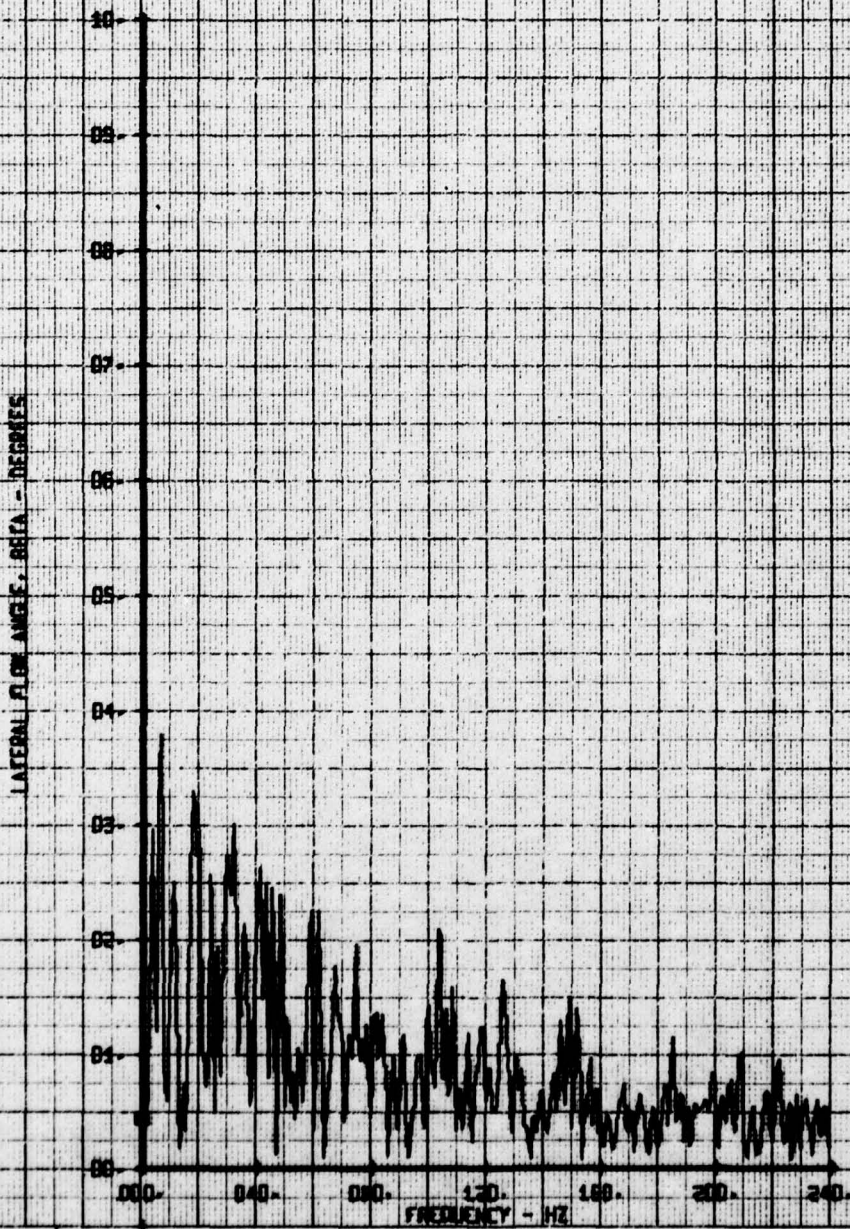
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE LEFT OF STAR.
RUN 117 TP 8

LEGEND
CH 66 PARAMETER
66 BETA



HOT FILM WAVE FREQUENCY ANALYSIS
BASE POINT: TRAVERSE LEFT OF STAR
RUN 117 TP 10

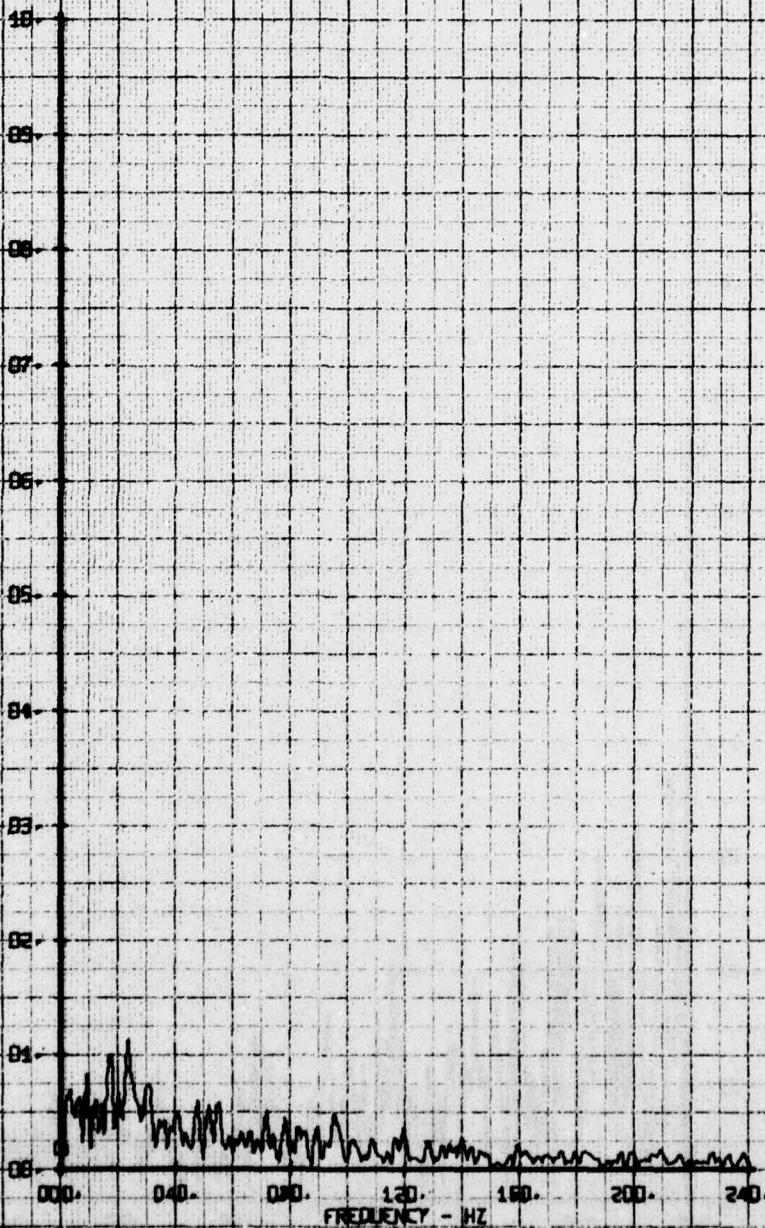
LEGEND
CH PARAMETER
66 BETA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONTIG. TRAVERSE LEFT OF STAR-
RUN 117 TP 2

LEGEND
CH ES
PARAMETER
V-ALPHA

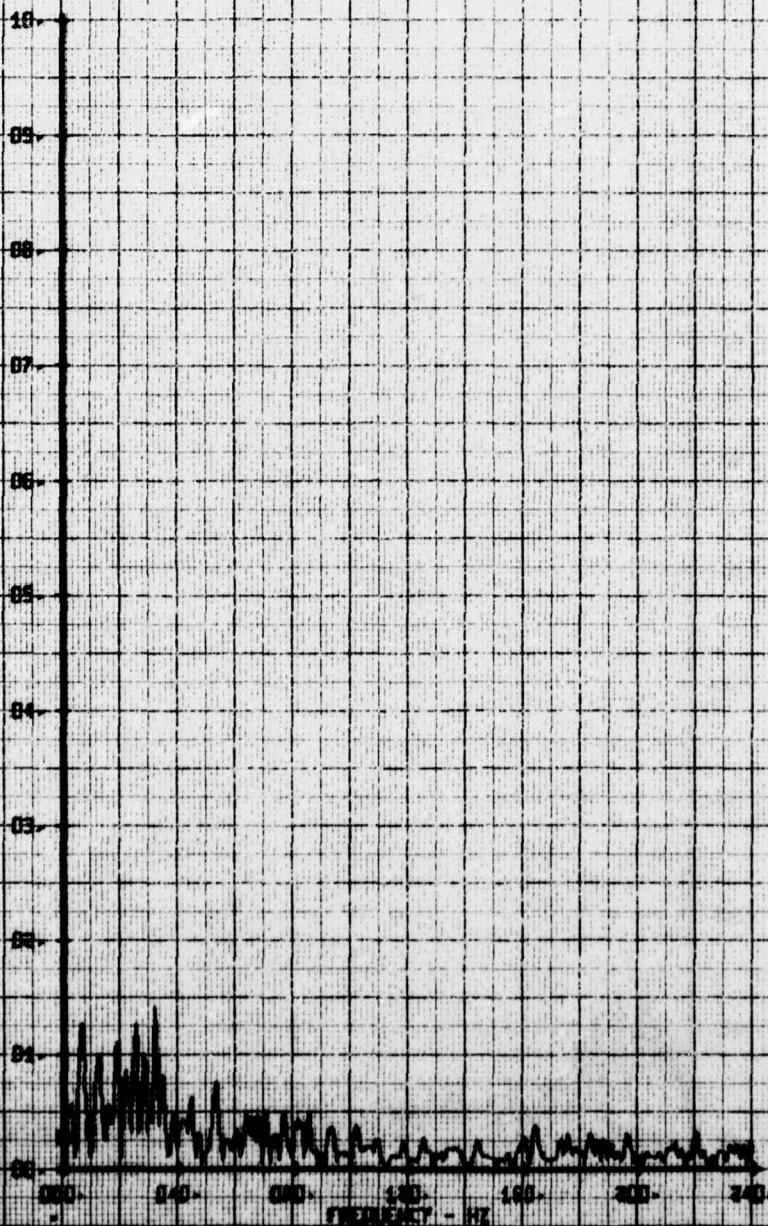
X-Y VELOCITY COMPONENT V-ALPHA FPS



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE LEFT OF STAR.
RUN 117 YP 1

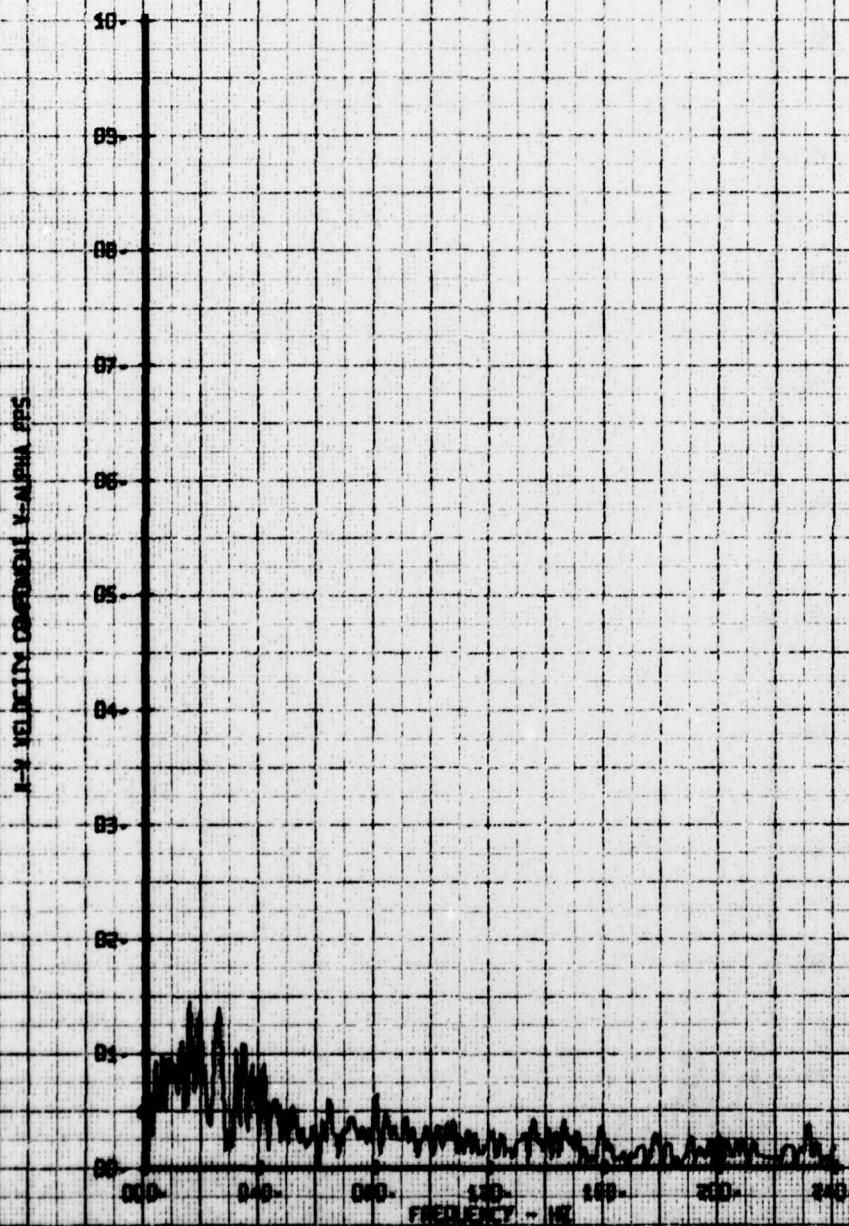
LEGEND
CH PARAMETER
65 V-ALPHA

K-V VELOCITY COMPONENT V-ALPHA RMS



NOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE LEFT OF STAB.
RUN 117 TP 6

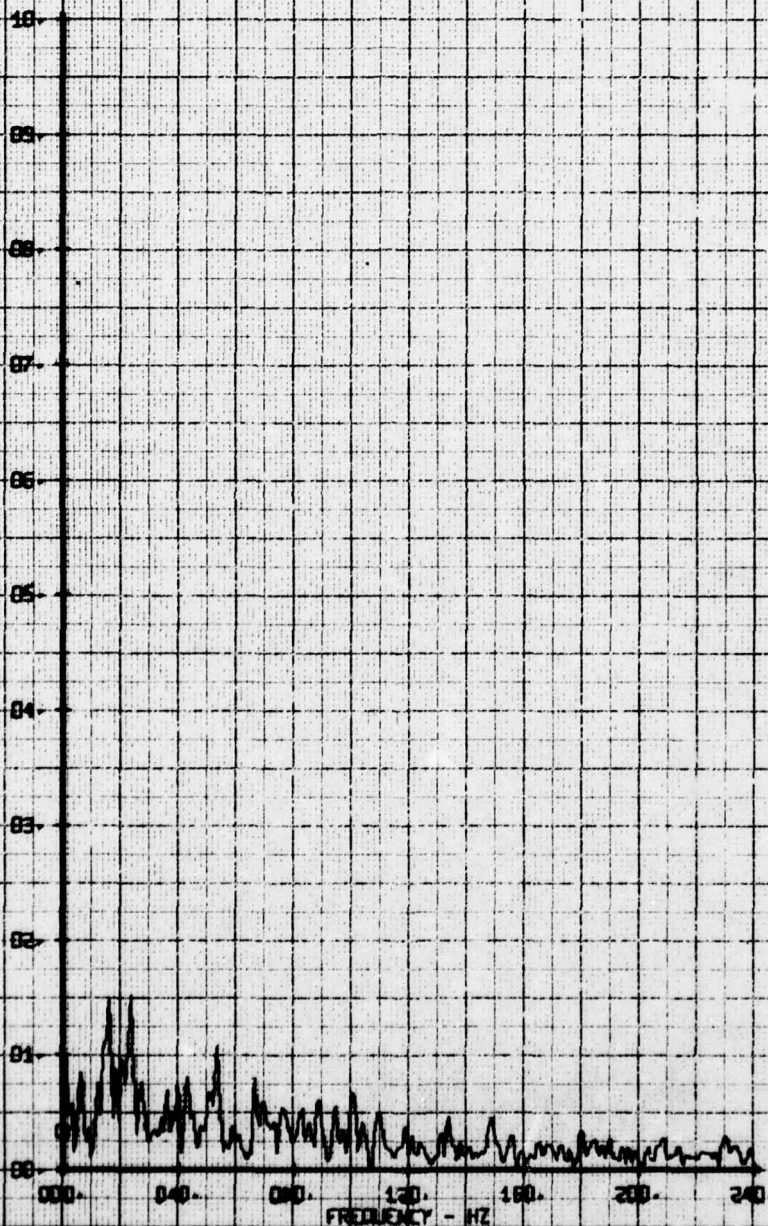
LEGEND
CH 65
PARAMETER
V-ALPHA



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE LEFT OF STAR.
RUN 117 TP 8

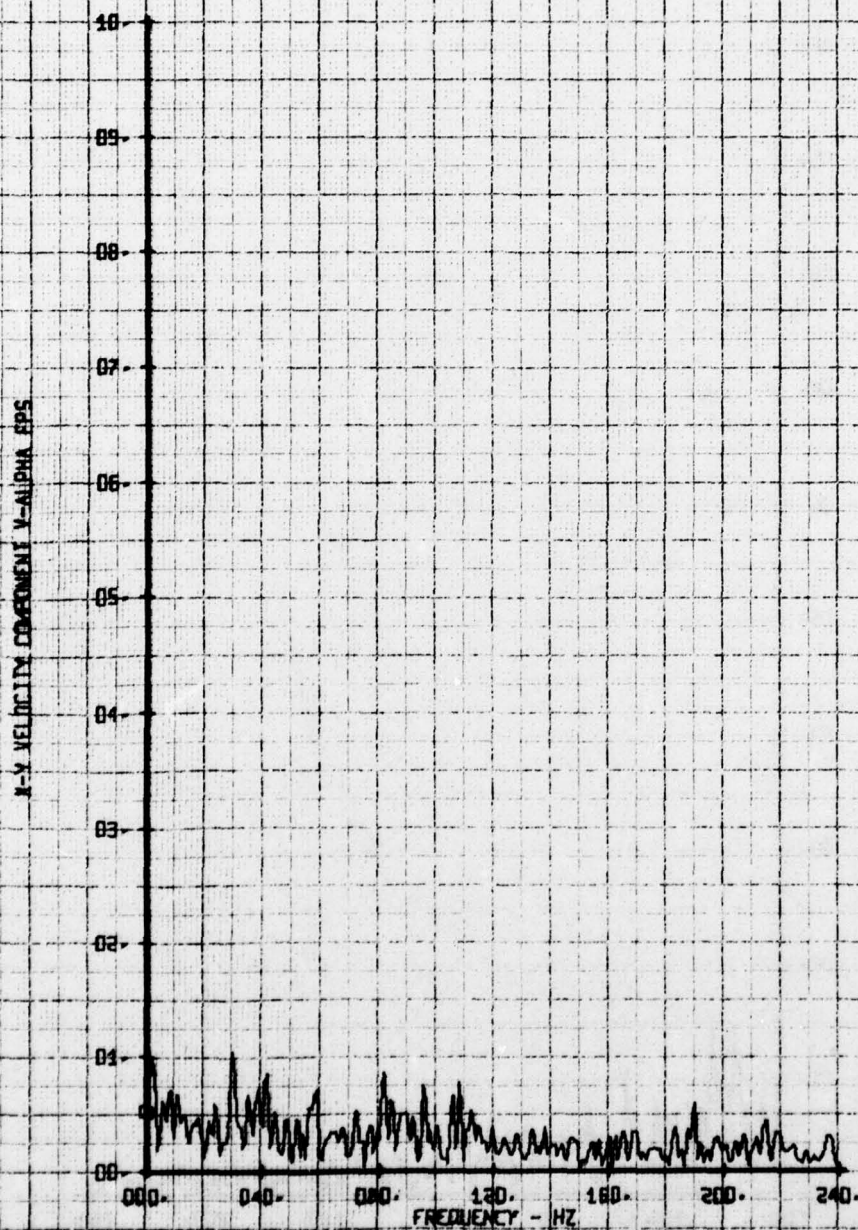
LEGEND
CN PARAMETER
65 V-ALPHA

K-V VELOCITY COMPONENT V-ALPHA FPS



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE LEFT OF STAR.
RUN 117 YP 10

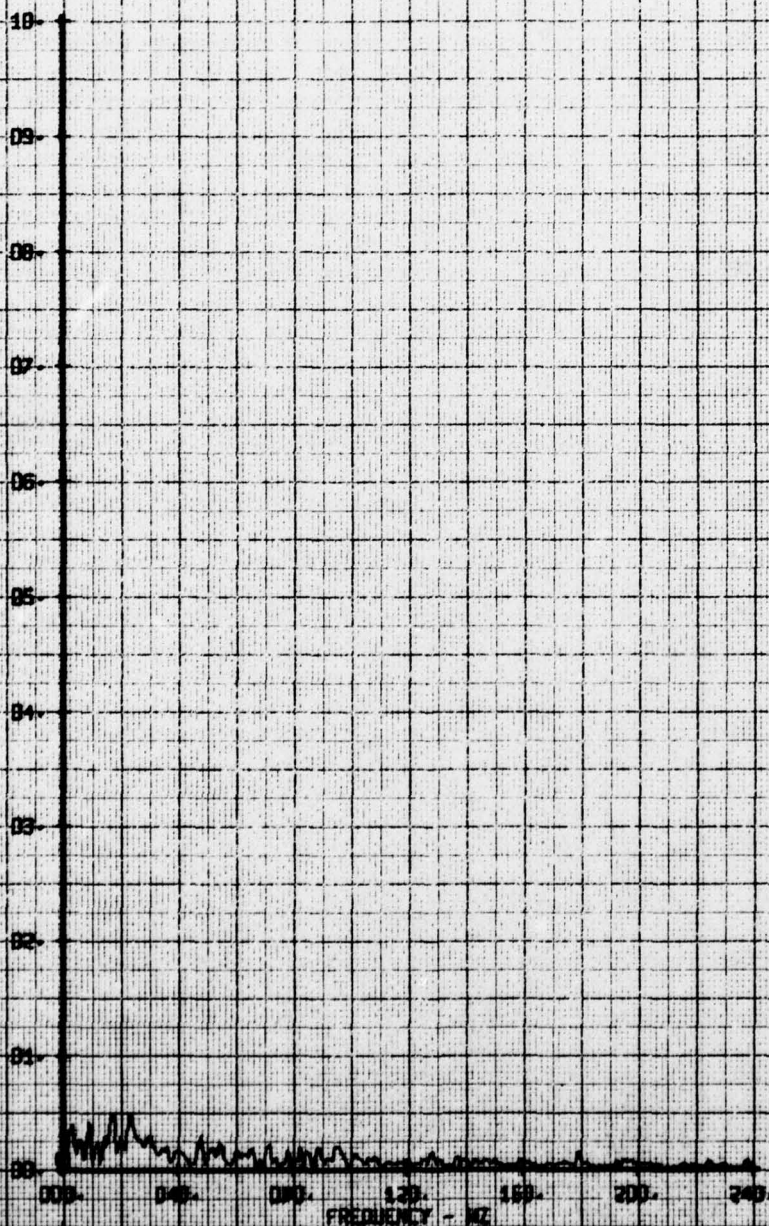
LEGEND
CH PARAMETER
65 V-ALPHA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE LEFT OF STAB.
RUN 117 TP 2

LEGEND
CH 56 PARAMETER
V-PETA

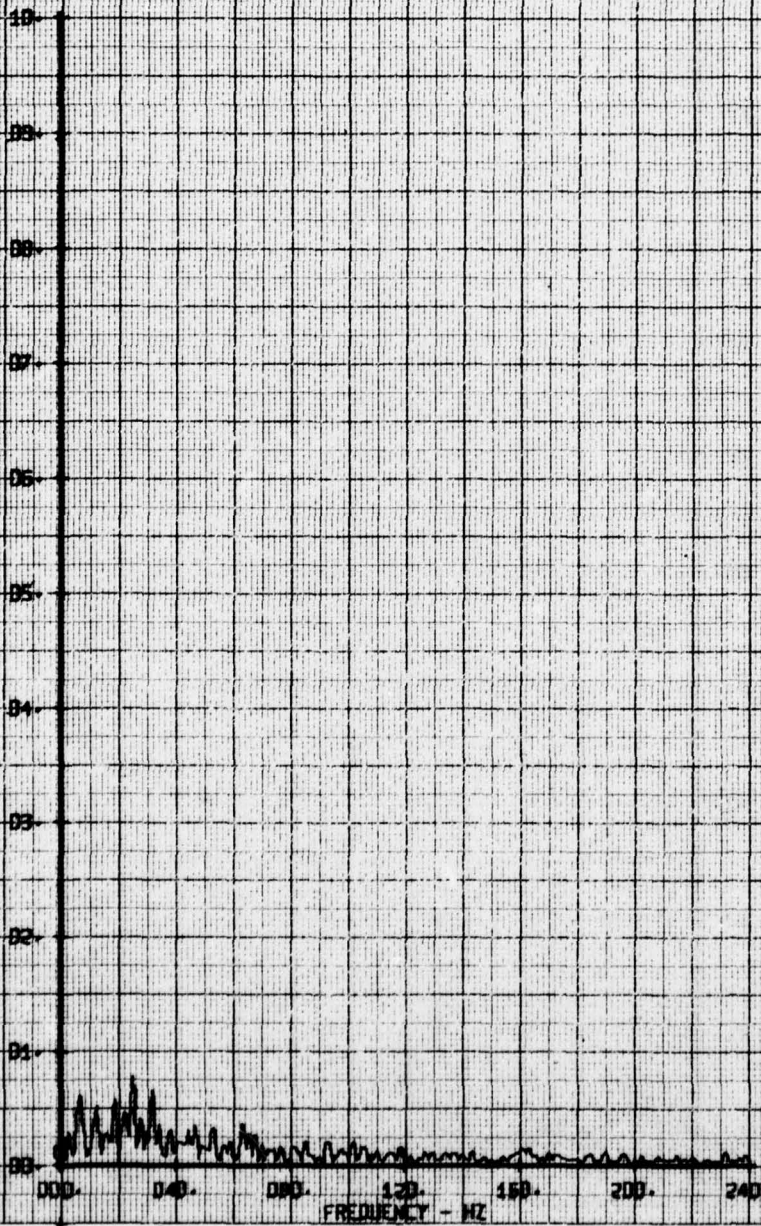
X-Z VELOCITY COMPONENT V-PETA FRS



HOT FILM WAKE FREQUENCY ANALYSIS
 BASE CONFIG. TRAVERSE LEFT OF STAB.
 RUN 112 TP 4

LEGEND
 CH PARAMETER
 05 V-BETA

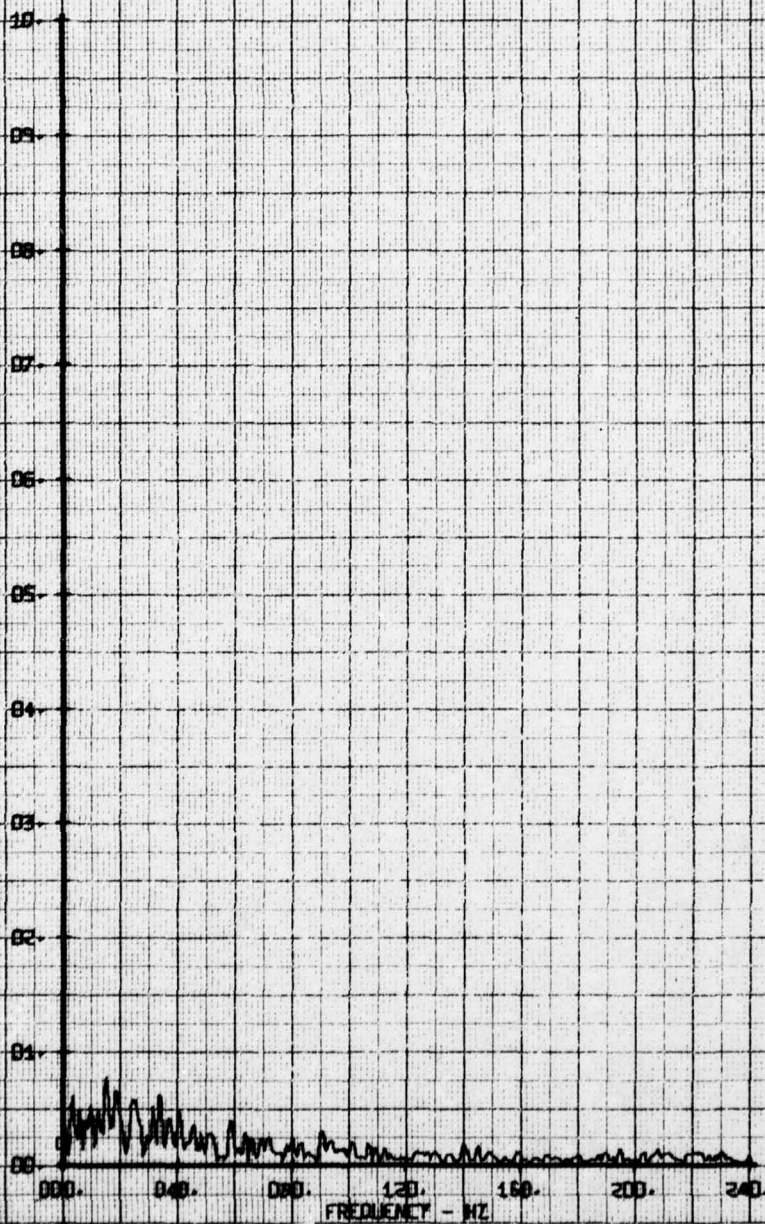
X-Z VELOCITY COMPONENT V-BETA RMS



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE LEFT OF STAR.
RUN 117 TP 6

LEGEND
CH PARAMETER
GG V-BETA

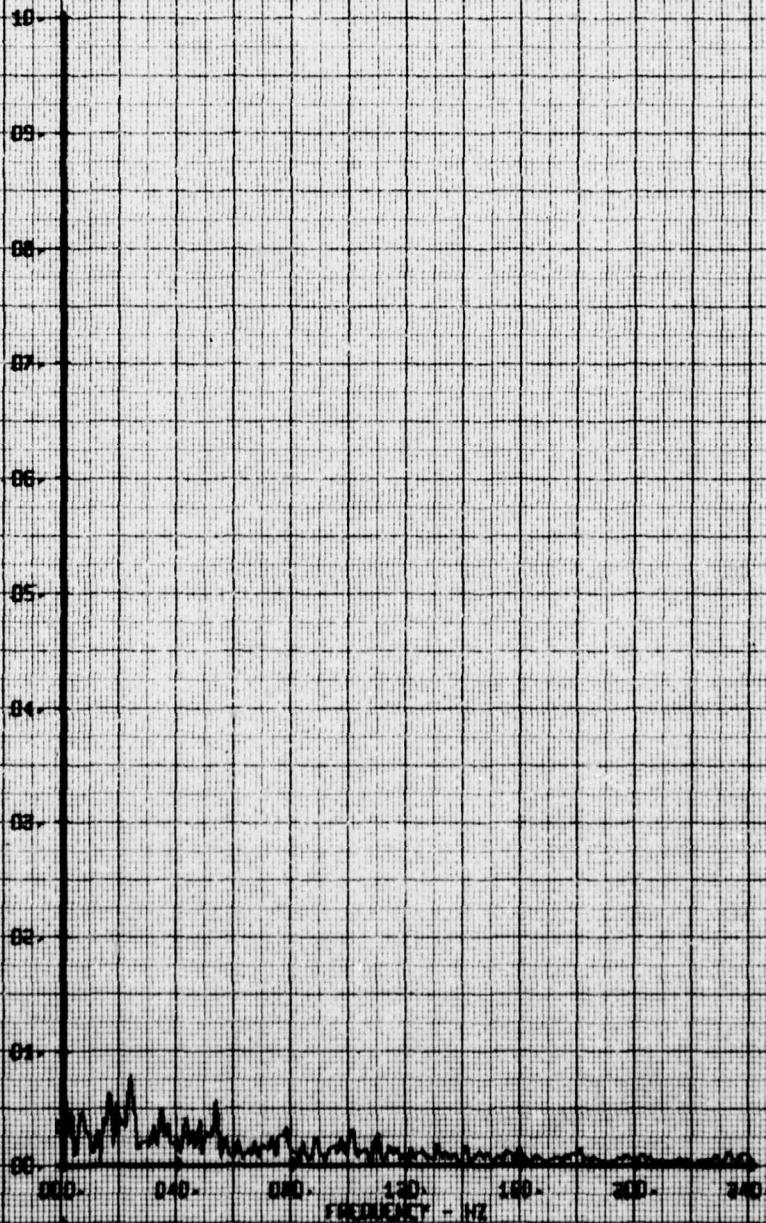
X-2 VELOCITY COMPONENT V-BETA EPS



HDT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE LEFT OF STAR.
RUN 117 TP 8

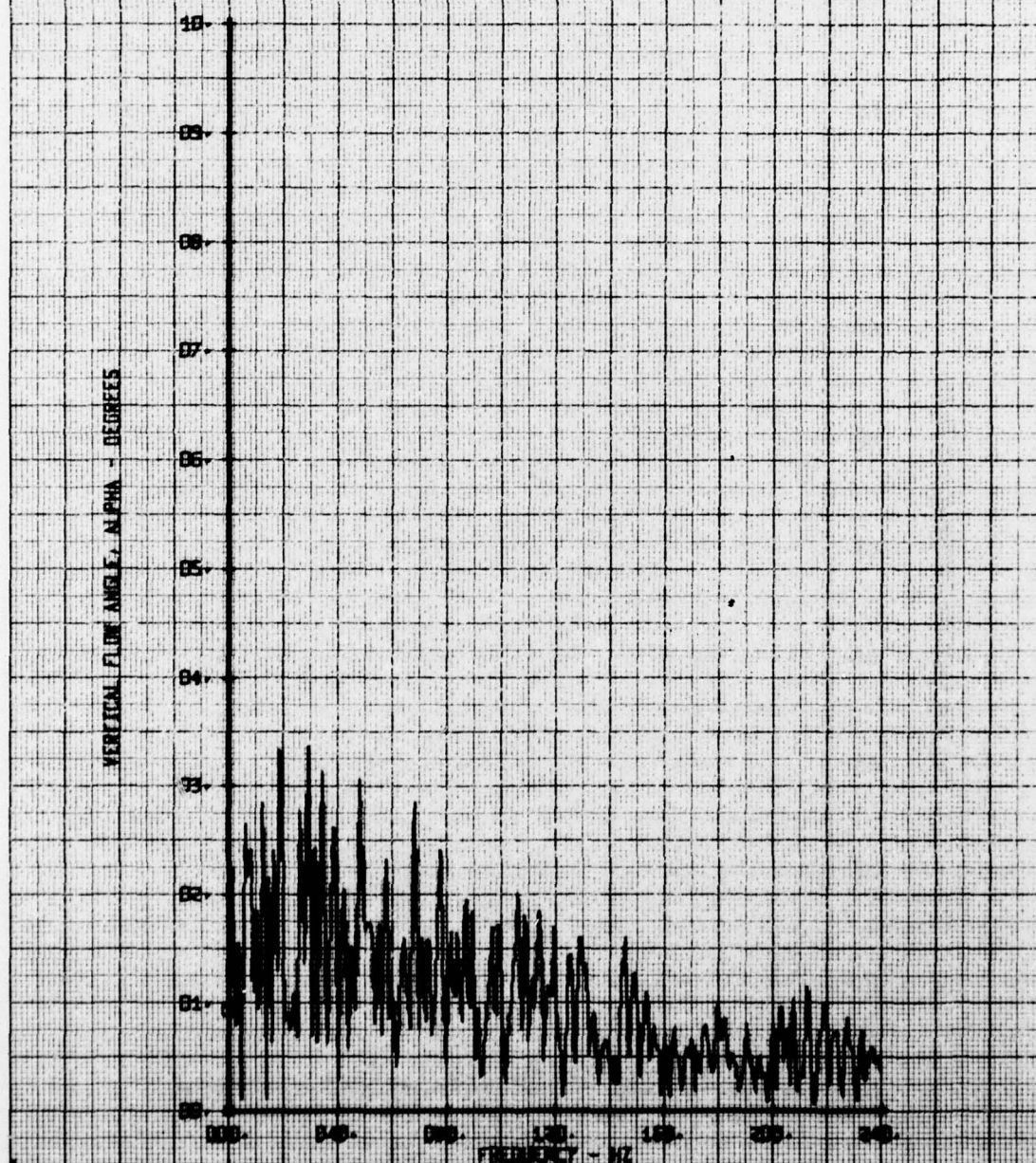
LEGEND
CH 66
PARAMETER
V-BETA

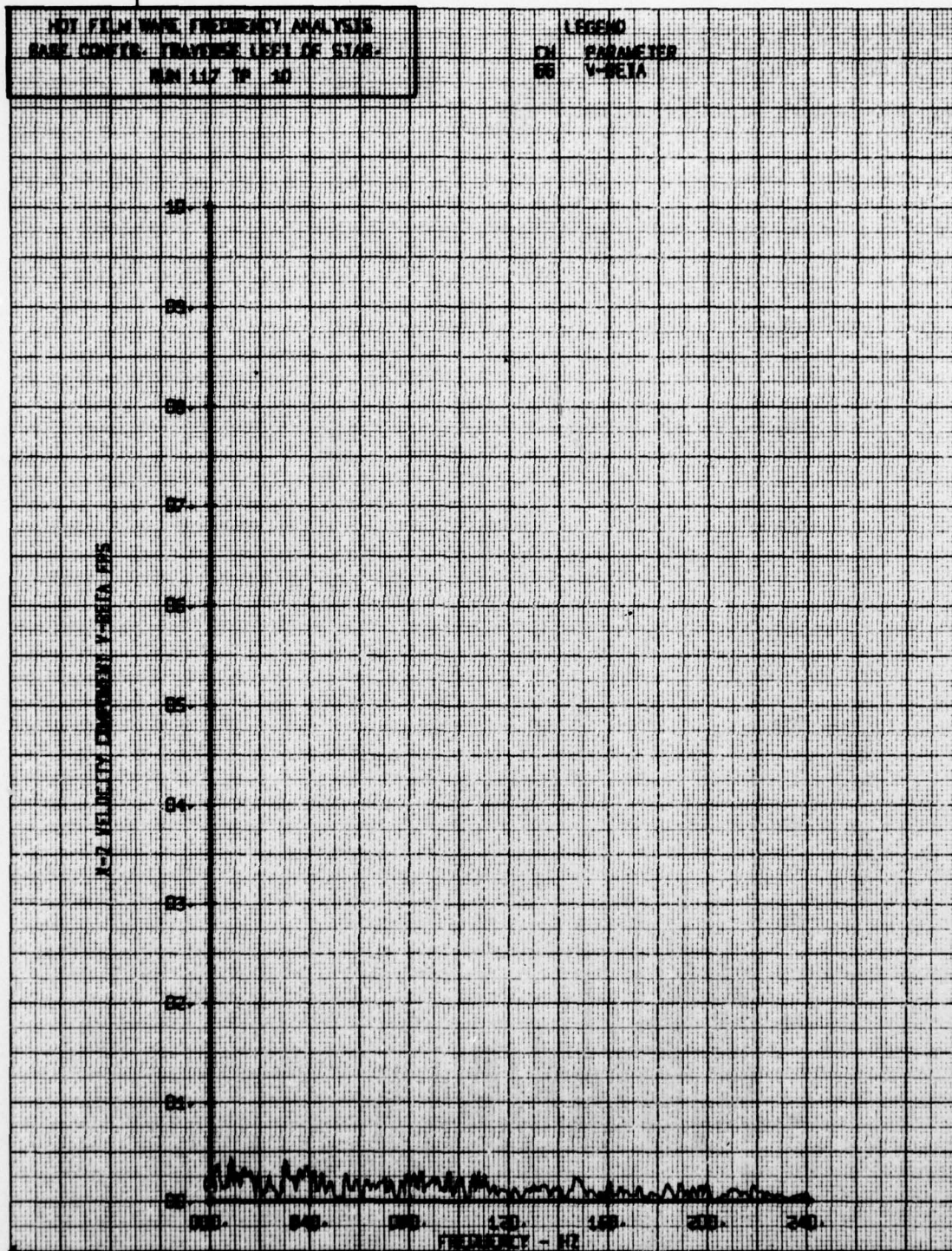
X-2 VELOCITY COMPONENT V-BETA FPS



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE LEFT OF STAR.
RUN 117 TP 8

LEGEND
CH PARAMETER
65 ALPHA

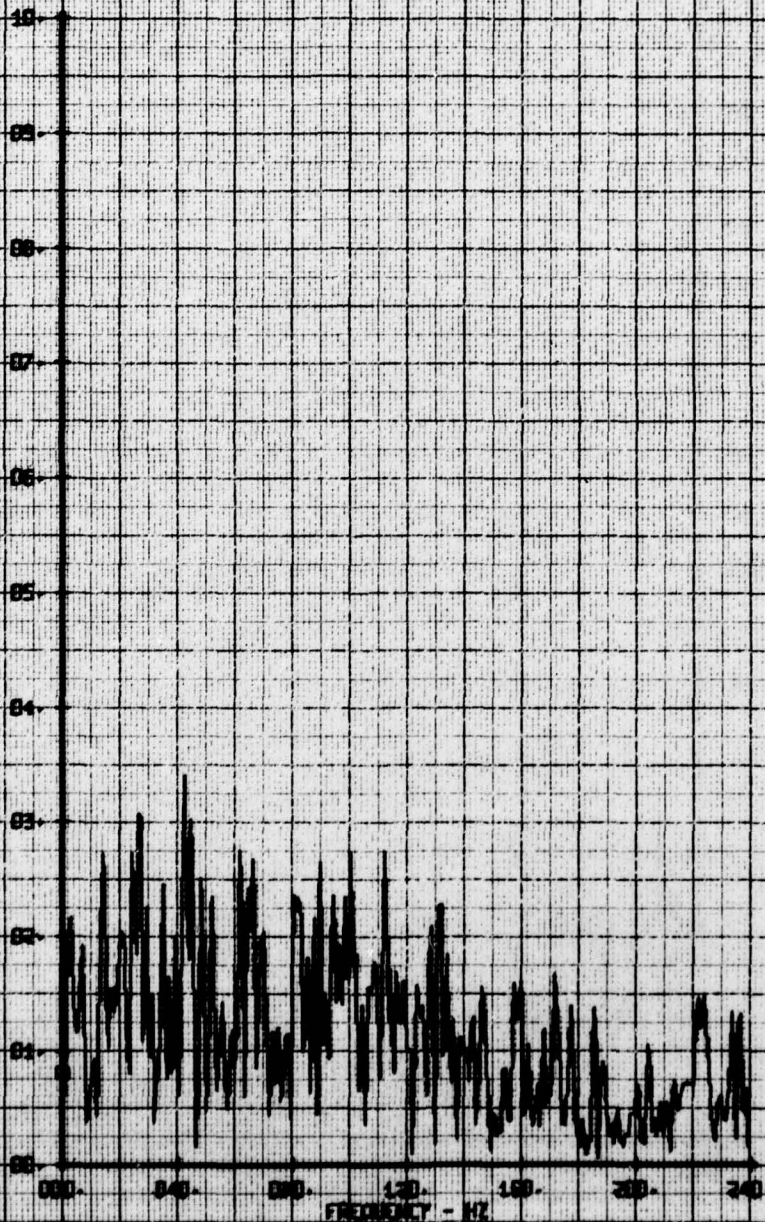




NOT FILM WAVE FREQUENCY ANALYSIS
BASE CONTR. TRAVERSE LEFT OF STAR-
NUM 118 TP 2

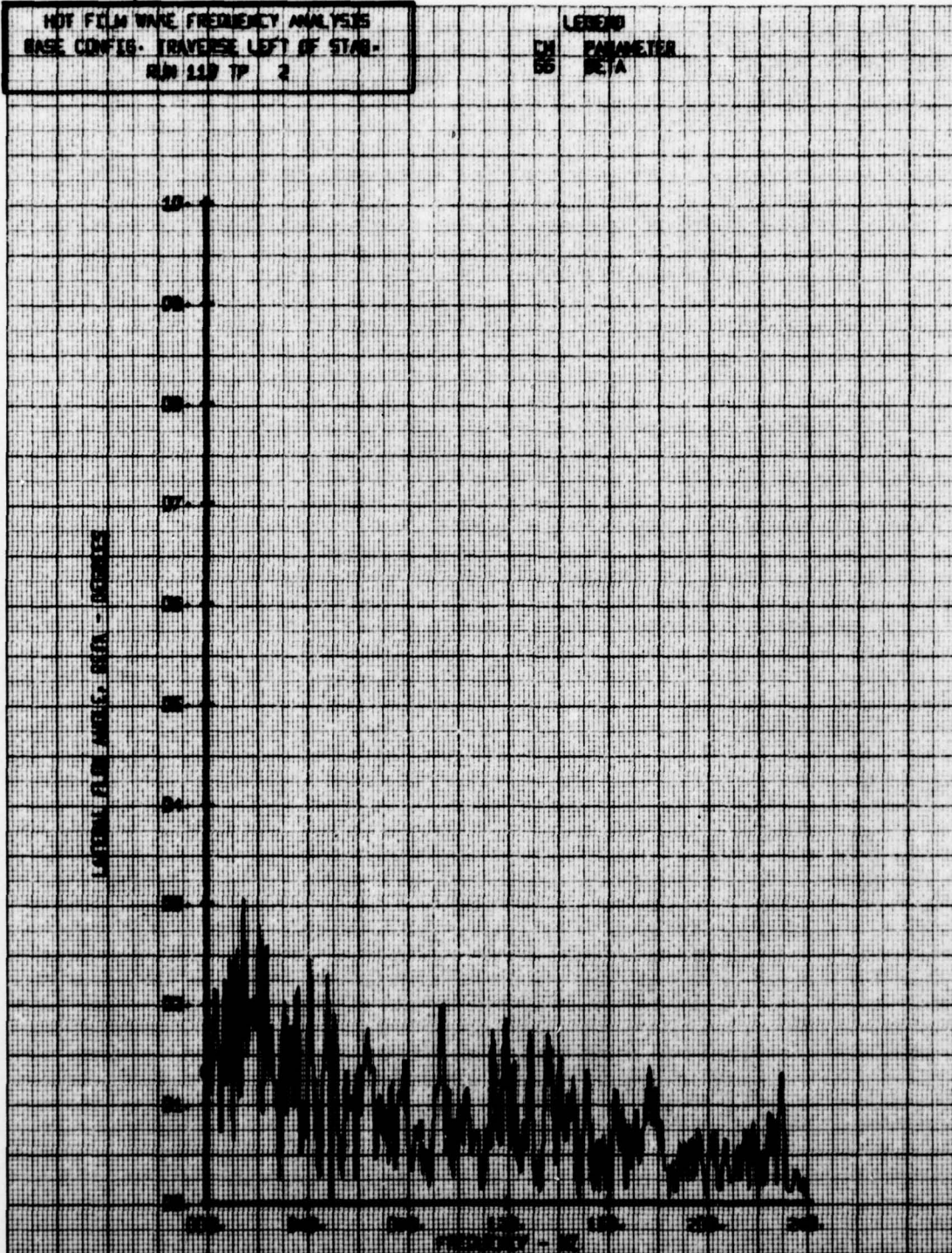
LEGEND
CH PARAMETER
65 ALPHA

VERTICAL FLOW ANGLE, ALPHA - DEGREES



HOT FILM WIRE FREQUENCY ANALYSIS
 BASE CONFIG. TRAVERSE LEFT OF STAR.
 RUN 110 TP 2

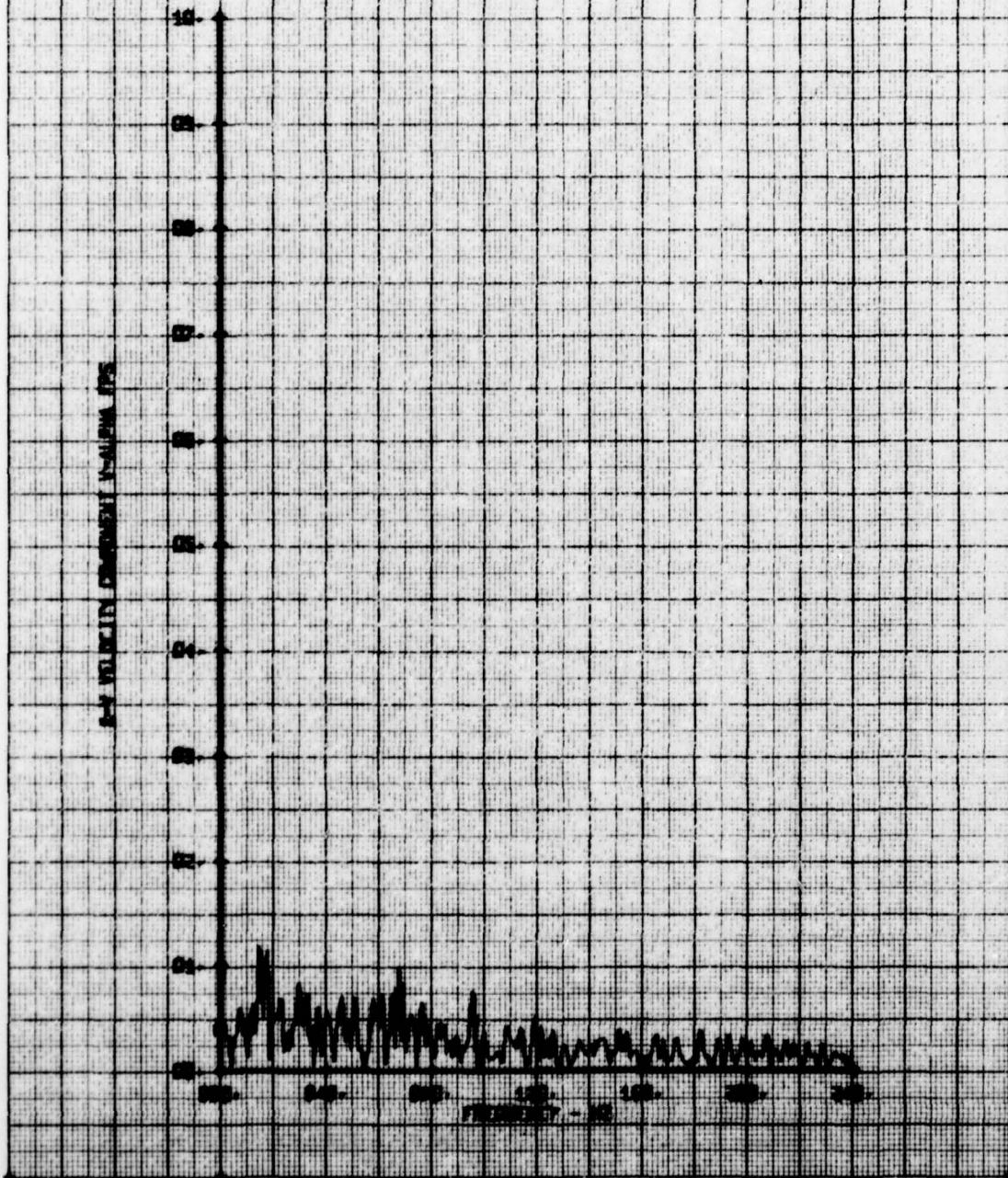
LEGEND
 CH 55
 PARAMETER
 BETA



HOT FILM WIRE FREQUENCY ANALYSIS
 BASE CONFIG. TRAVERSE LEFT OF STAB.
 RUN 110 TP 2

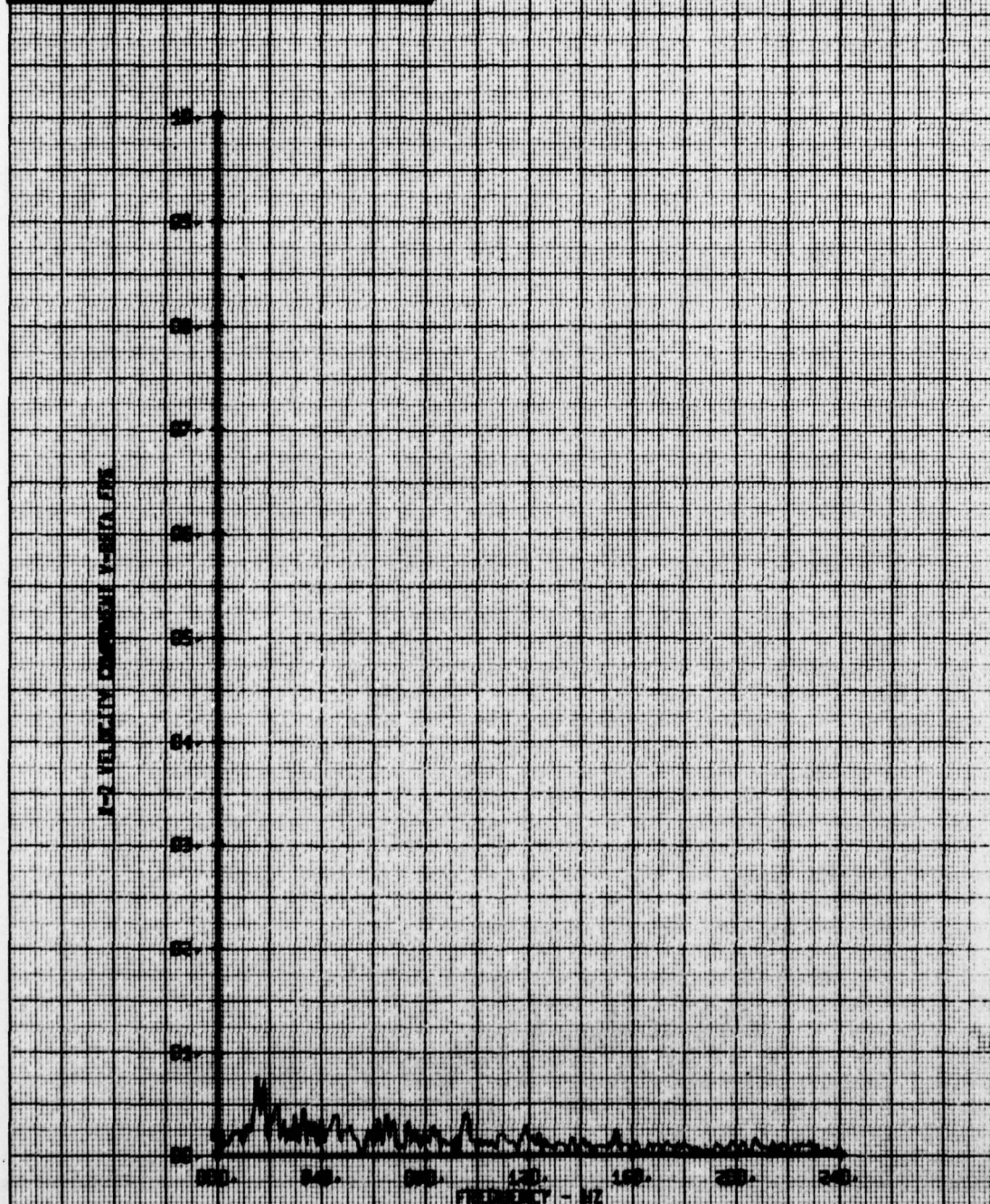
LEGEND
 CH 65
 PARAMETER
 V-ALPHA

2-V VOLTAGE CURRENT V-ALPHA RMS



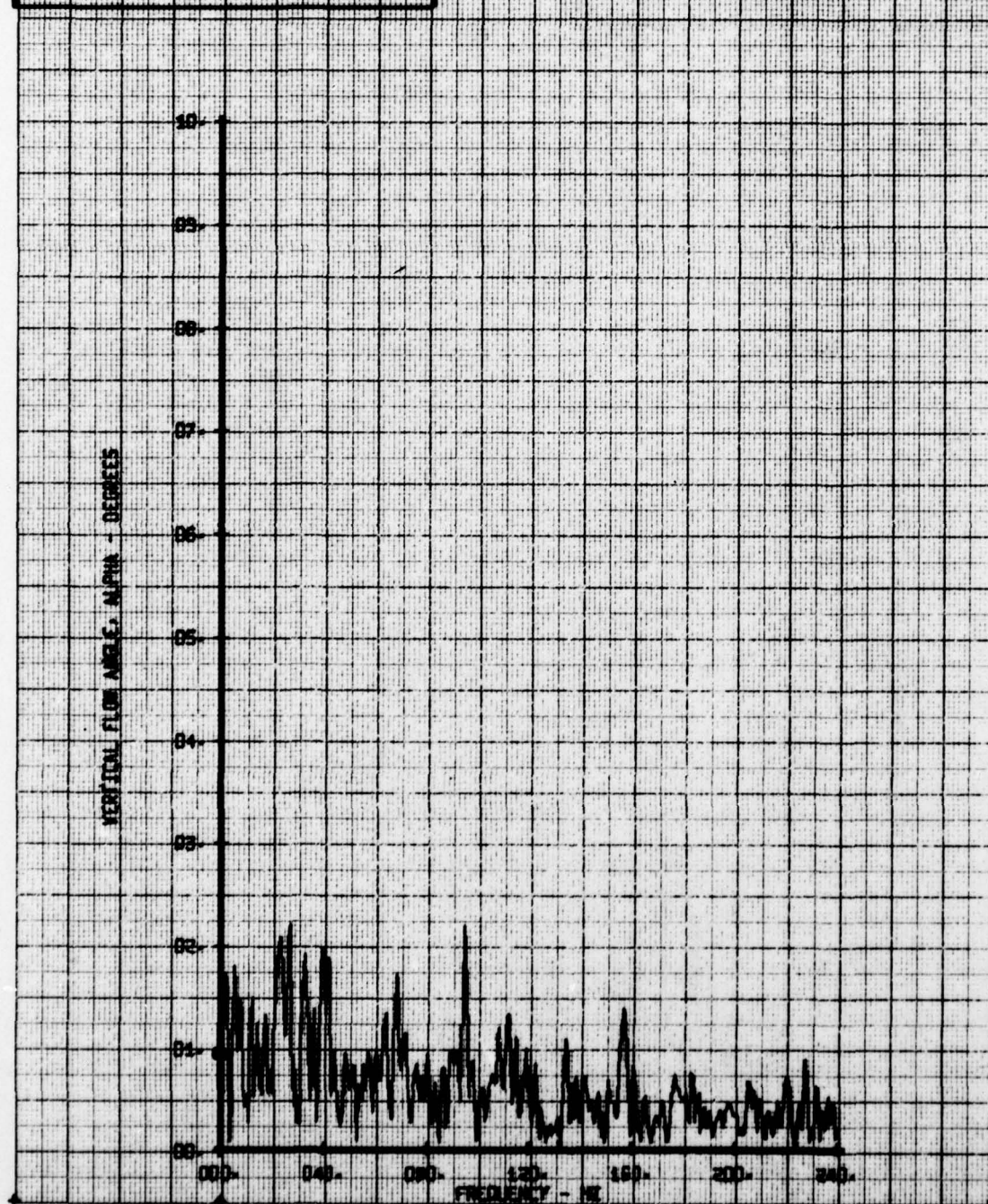
NOT FILM WORK FREQUENCY ANALYSIS
 BASE CENTER: FREQUENCY LEFT OF SCALE
 RUN 118 W 2

LEGEND
 CH PARAMETER
 W V-BETA



HOT FILM WIRE FREQUENCY ANALYSIS
BASE CENTER: TRAVERSE RT. OF STAR
RUN 118 TP 2

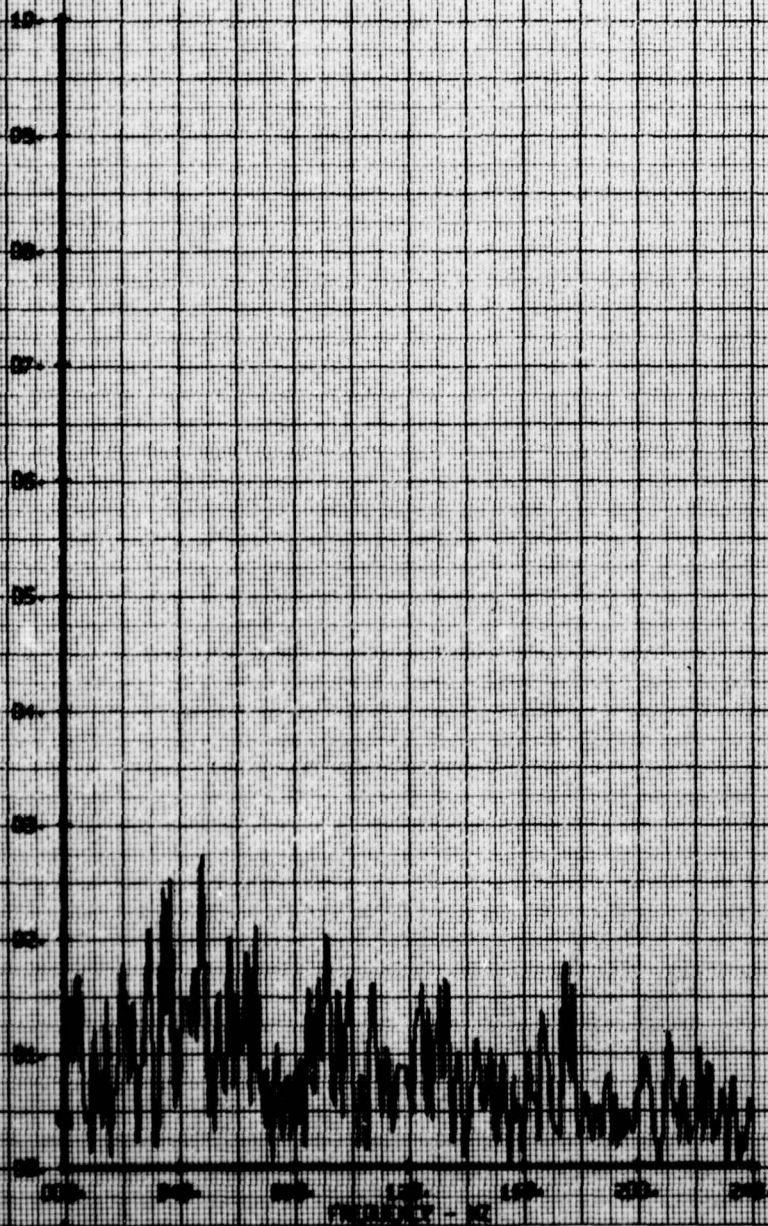
LEGEND
CH PARAMETER
05 ALPHA



NOT FILM W/VE FREQUENCY ANALYSIS
 BASE CONFIR- TRACKING RT- BY STAN-
 RUN 110 TP 5

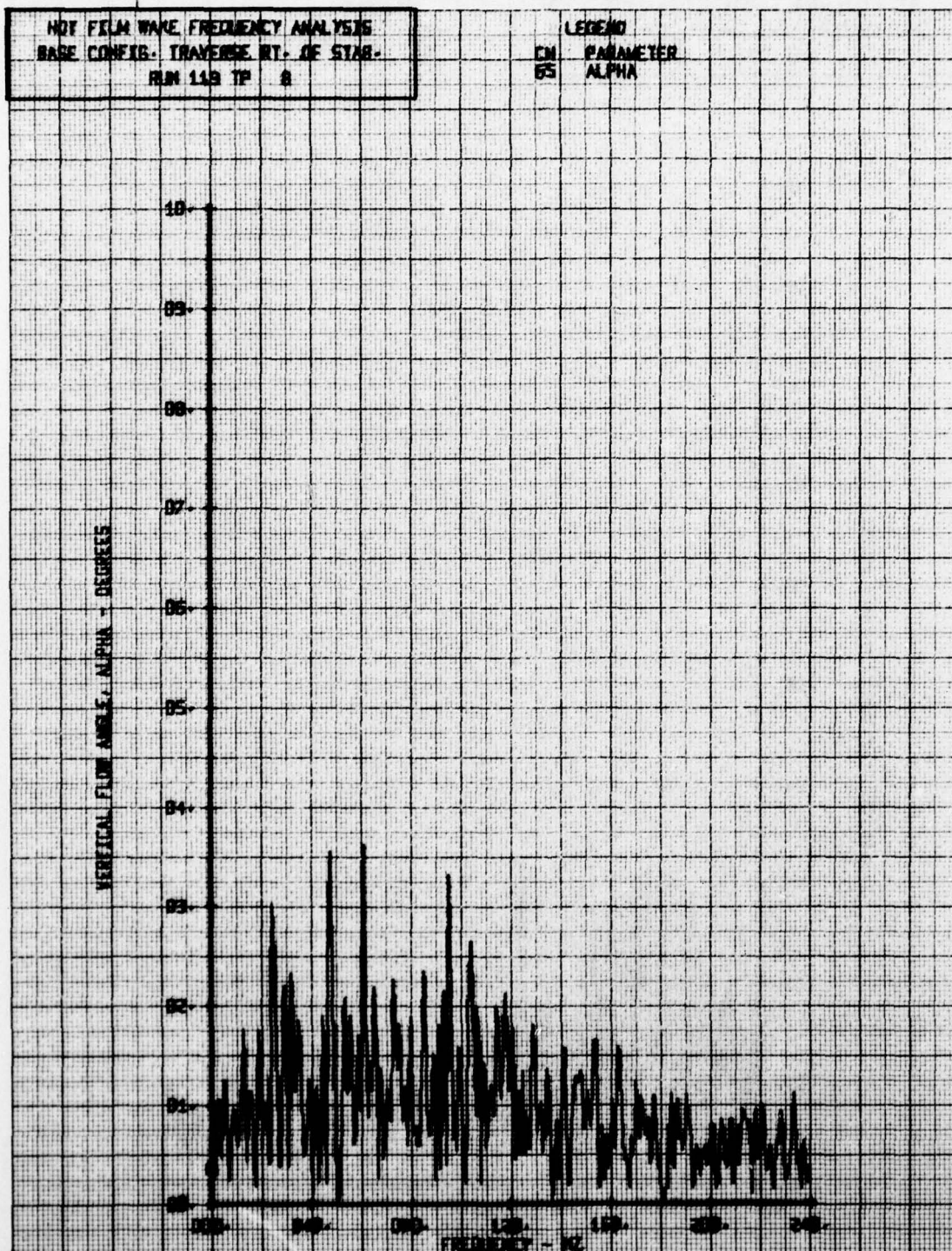
LEDSO
 PARAMETER
 ALPHA

VERTICAL FILM ANGLE, ALPHA - DEGREES



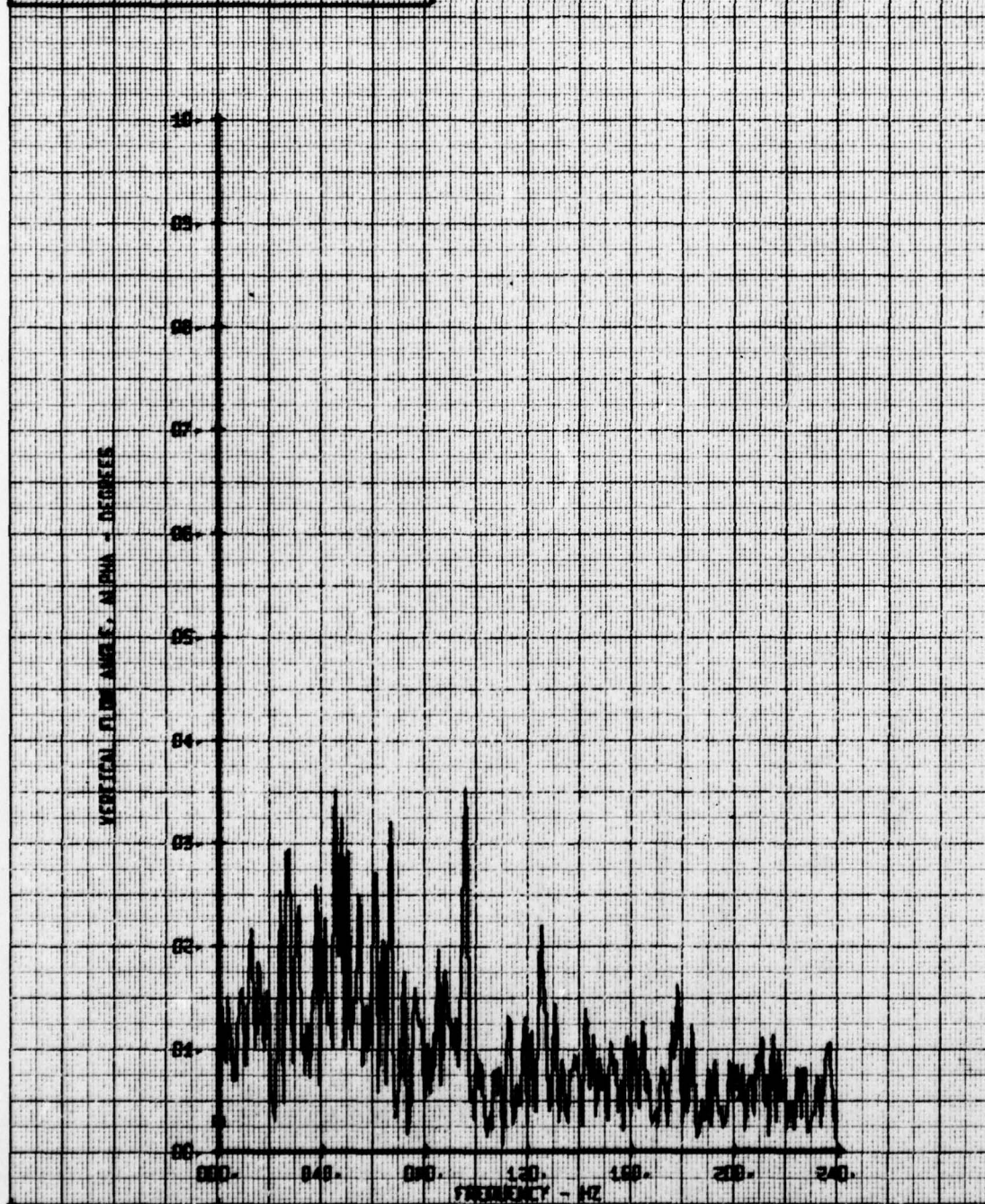
NOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE RT. OF STAR.
RUN 119 TP 8

LEGEND
CM PARAMETER
65 ALPHA



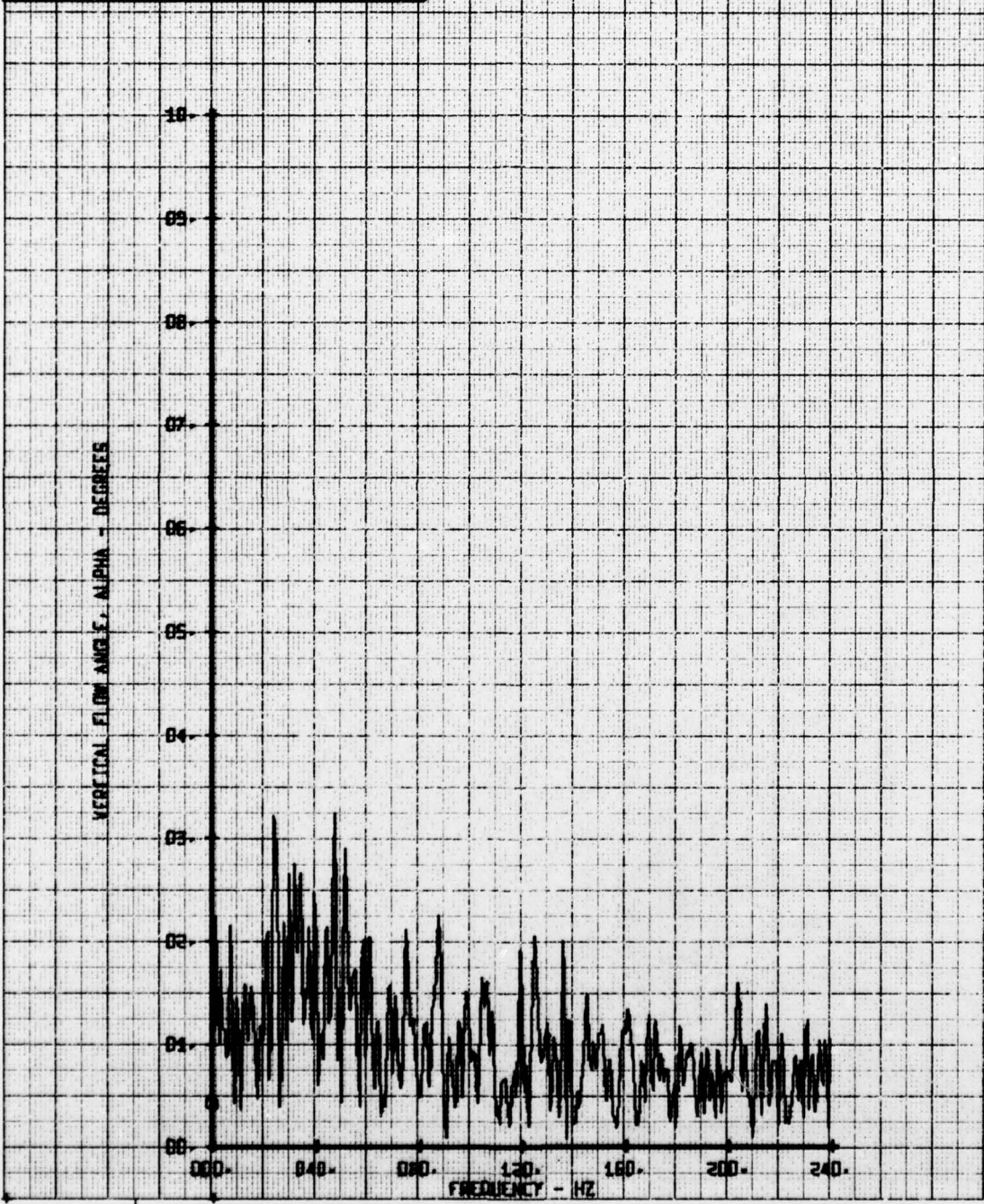
HOT FILM WAVE FREQUENCY ANALYSIS
 BANK COMBIN. TRAVERSE RT. OF STAR.
 RUN 115 TP 5

LEGEND
 CH PARAMETER
 65 ALPHA



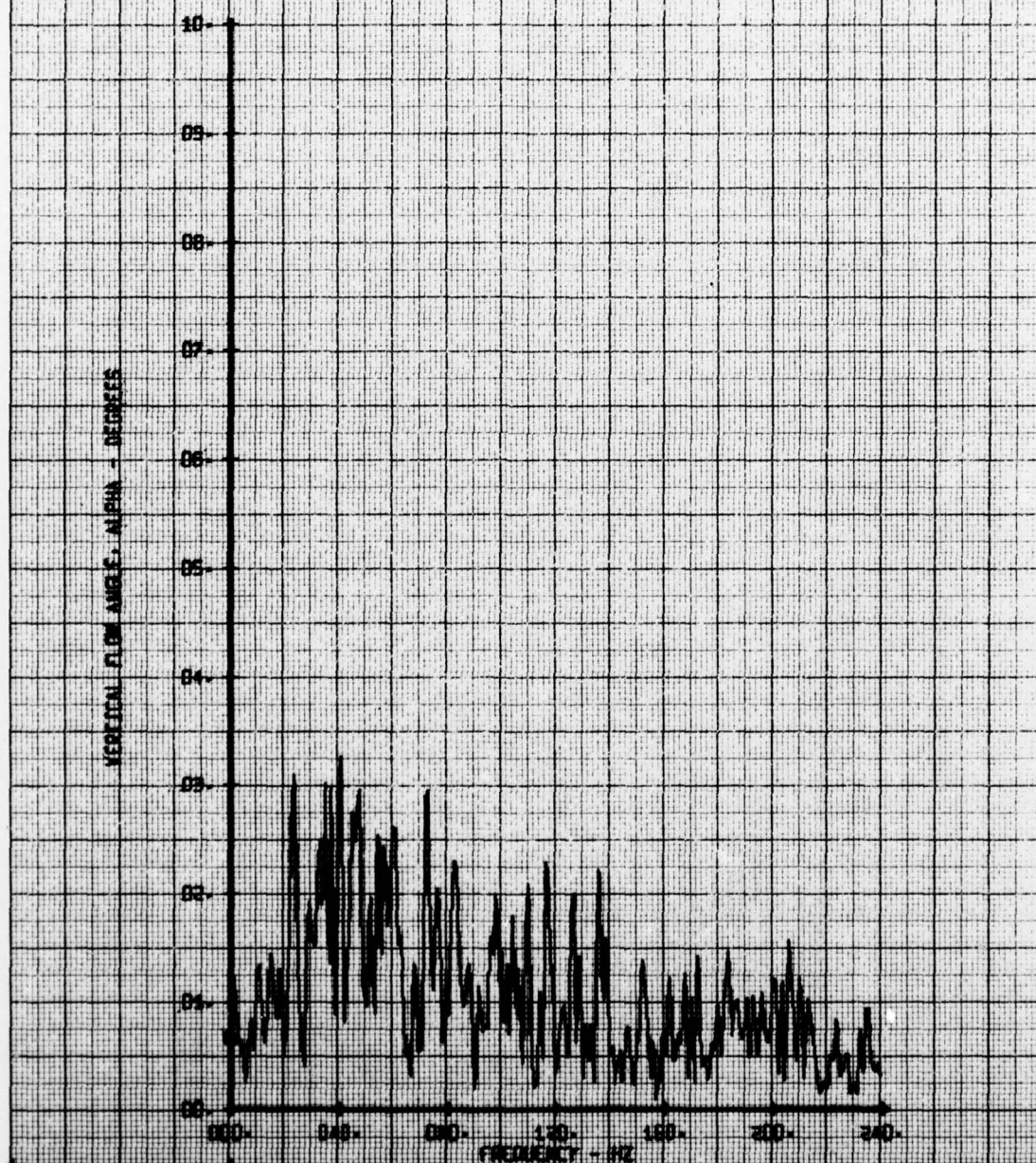
NOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG: TRAVERSE RT. OF STAB-
RNM 113 TP 12

LEGEND
CH 65
PARAMETER
ALPHA



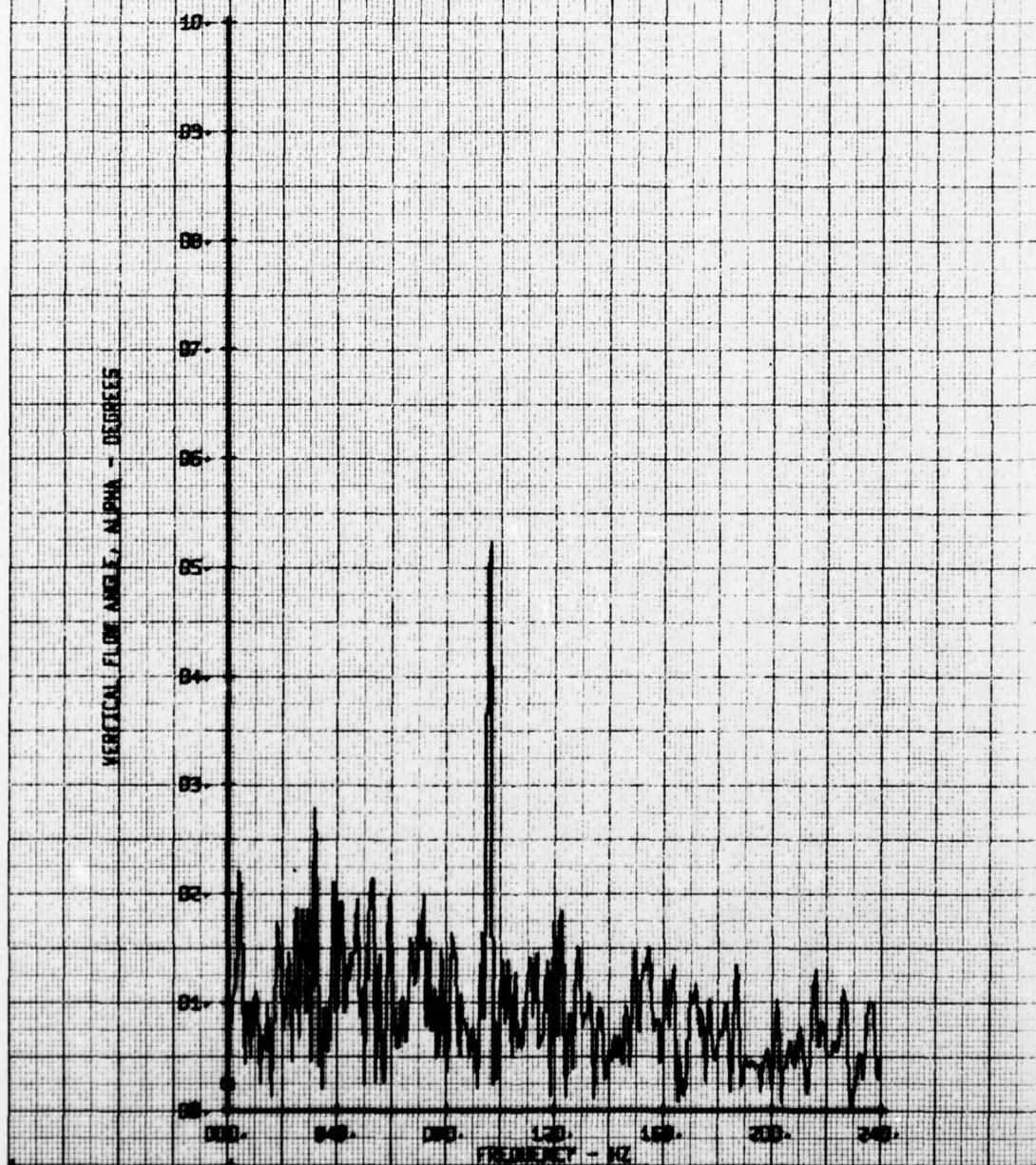
HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE RT. OF STAR.
RUN 119 TP 14

LEGEND
CH PARAMETER
65 ALPHA



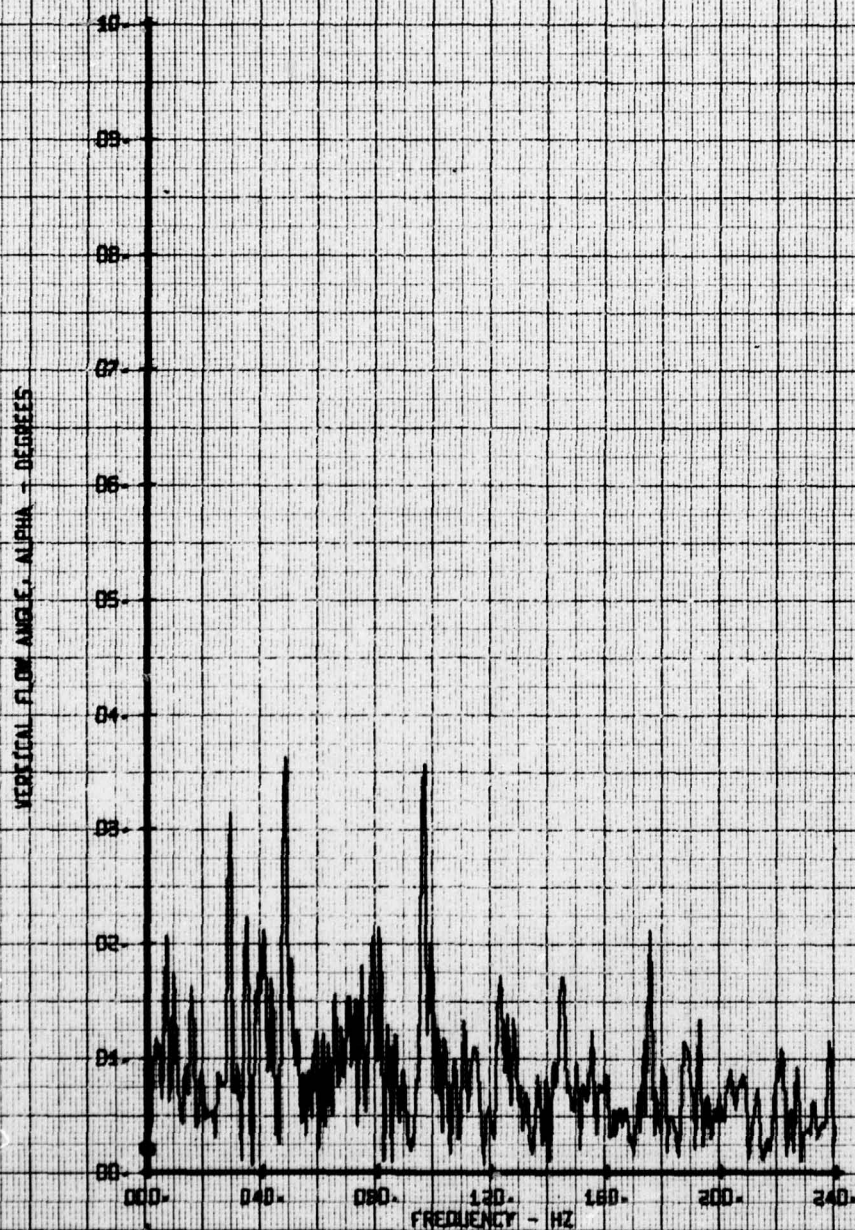
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BASE CONFIG. TRAVERSE RT. OF STAB.
RUN 113 TP 16

LEGEND
CH PARAMETER
65 ALPHA



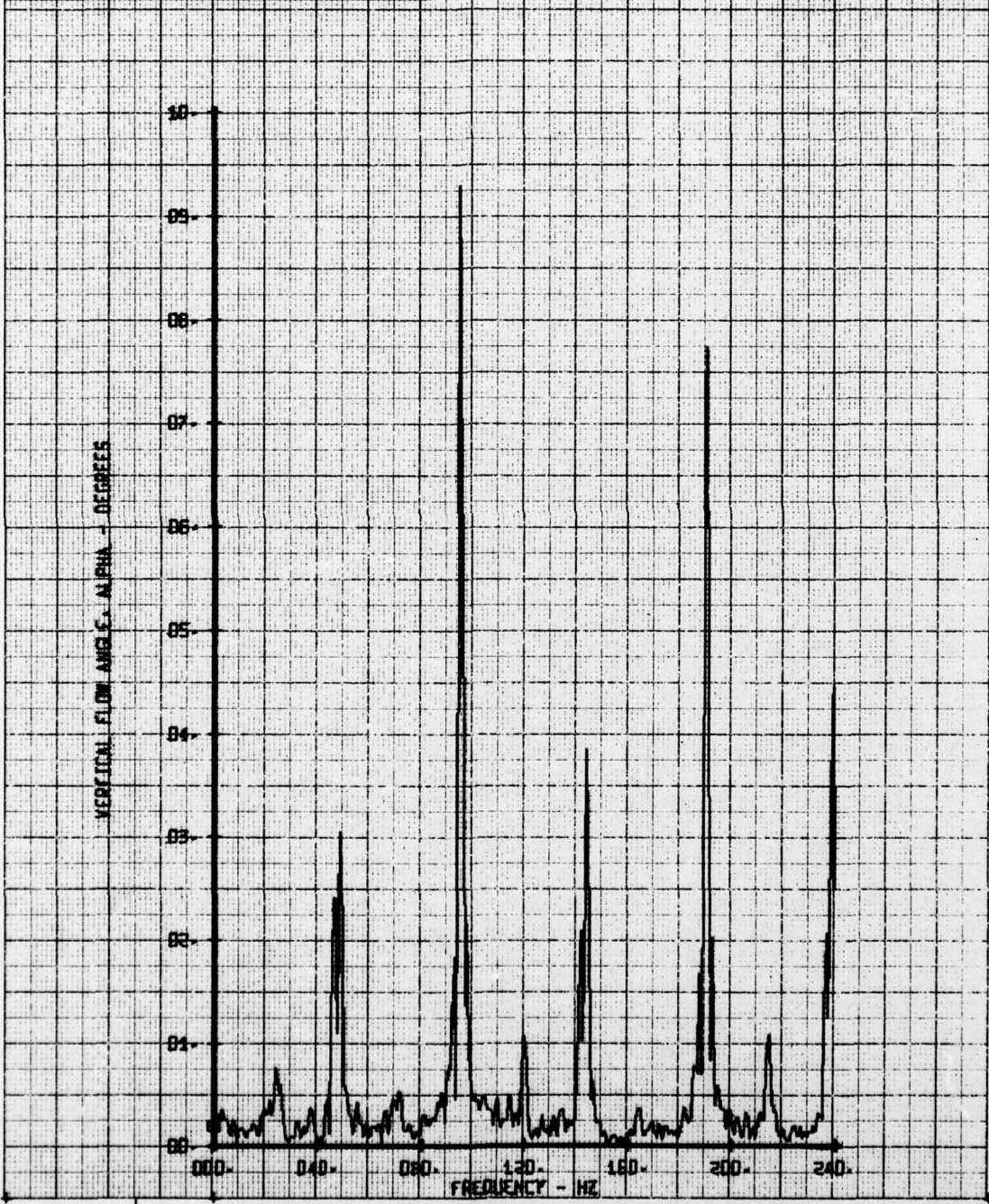
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIR. TRAVERSE RT. OF STAR.
RUN 129 TP 20

LEGEND
CH PARAMETER
65 ALPHA



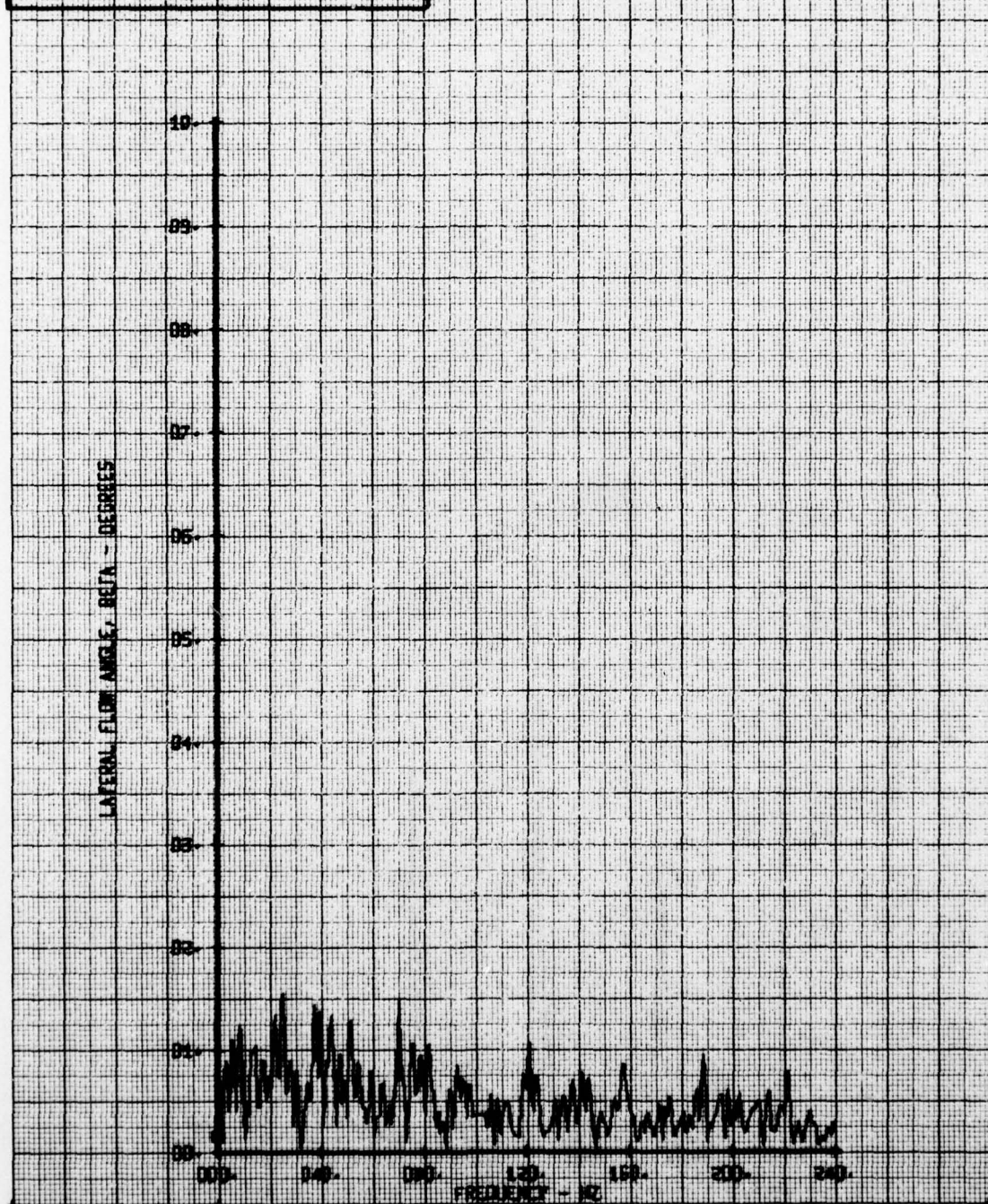
HOT FILM WAVE FREQUENCY ANALYSIS
 BASE CONTS. TRAVERSE RT. OF STAB.
 RUN 113 TP 25

LEGEND
 CH. PARAMETER
 65 ALPHA



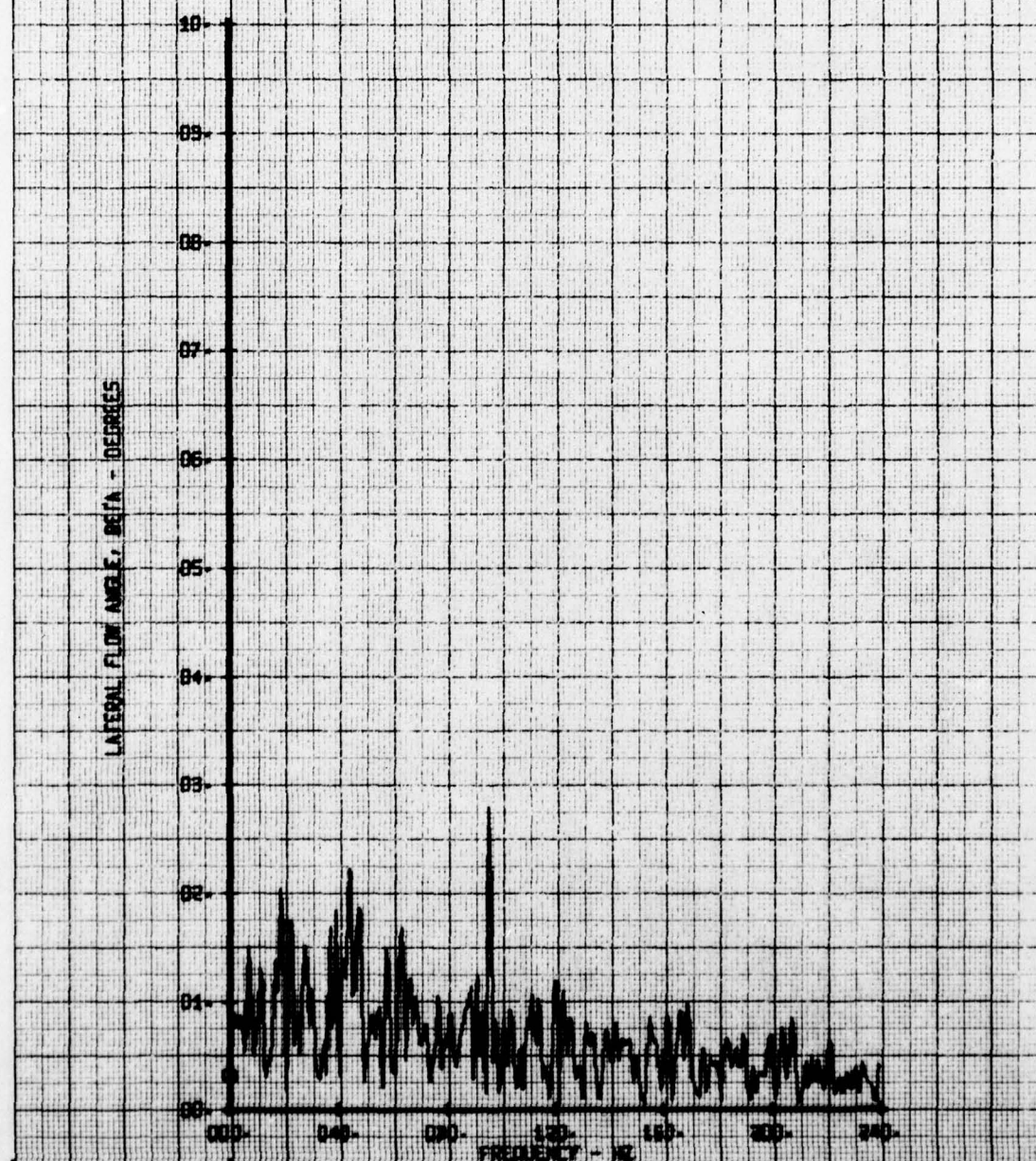
HOT FILM WIRE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE RT. OF STAR.
RUN 113 TP 2

LEGEND
CM PARAMETER
55 BETA



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG: TRAVERSE RT. OF STAB-
RUN 119 TP 5

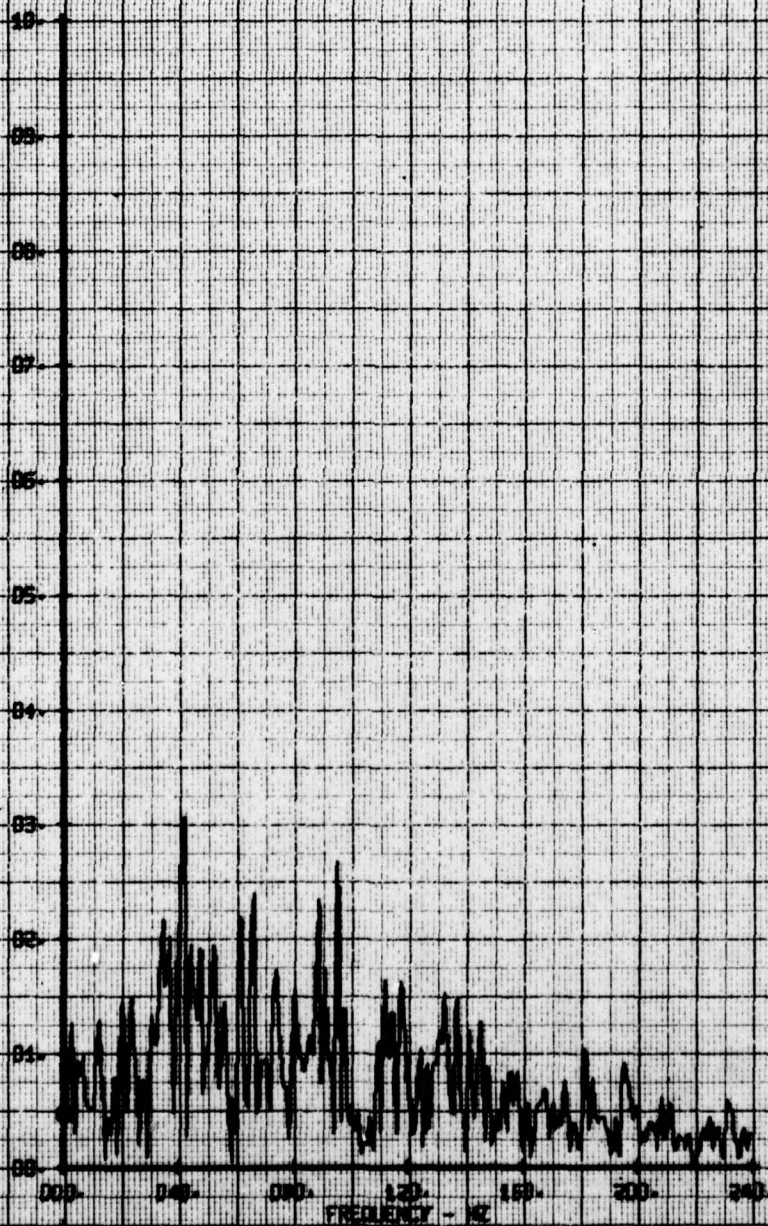
LEGEND
CH PARAMETER
06 BETA



NOT FILM WAVE FREQUENCY ANALYSIS
 BASE CONFR. TRAVERSE RT. OF STAR.
 RUN L&D TP 0

LENDING
 CH PARAMETER
 05 BETA

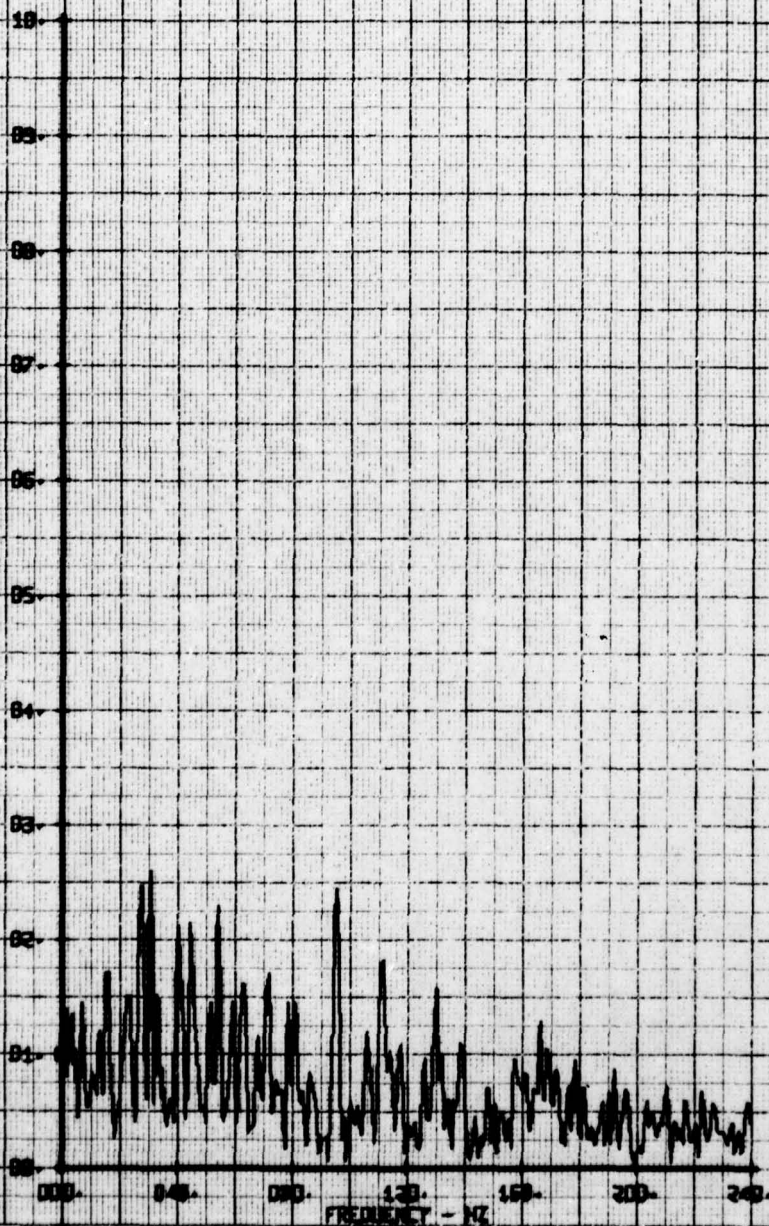
LATERAL FLOW ANGLE, BETA - DEGREES



NOI FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRANSVERSE WT. OF STAR.
R/R 118 TP 9

LEGEND
CM PARAMETER
BB BETA

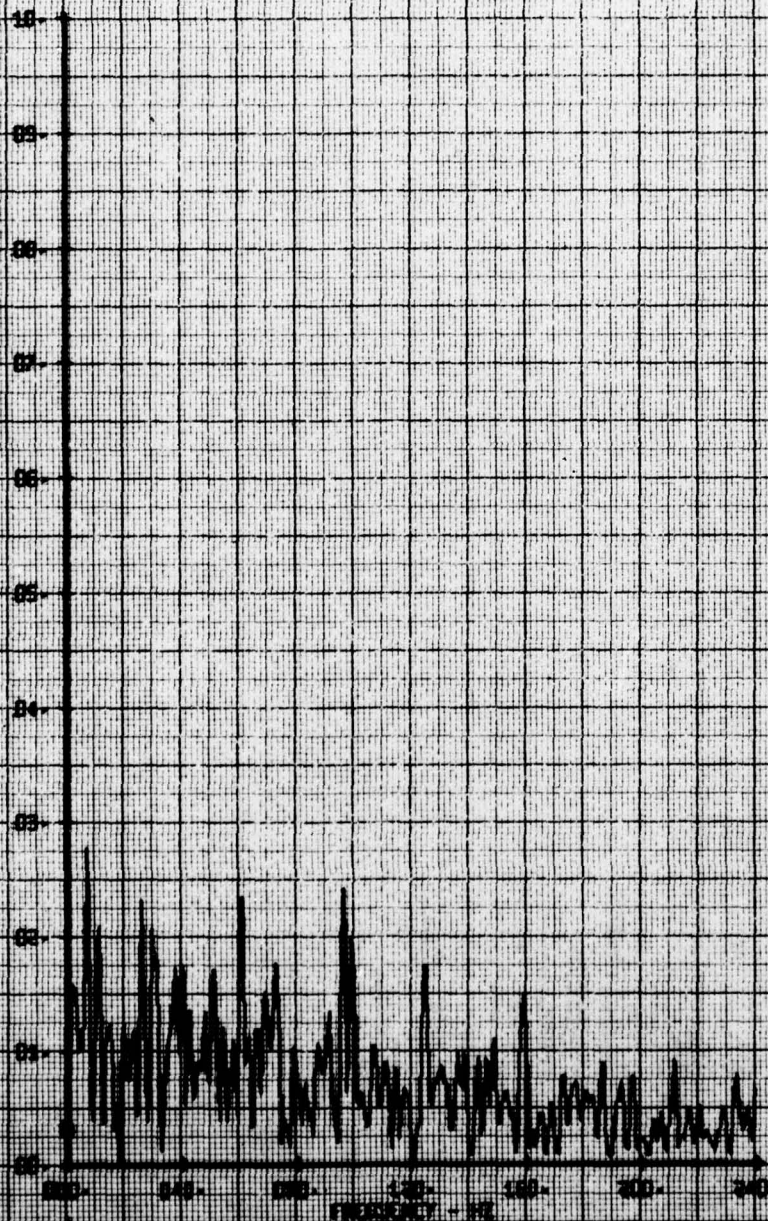
LATERAL FLOW ANGLE, BETA - DEGREES



NOT FILM WAVE FREQUENCY ANALYSIS
 BASE CONTS: TRAVERSE RT. OF STAR.
 RUN 119 TP 12

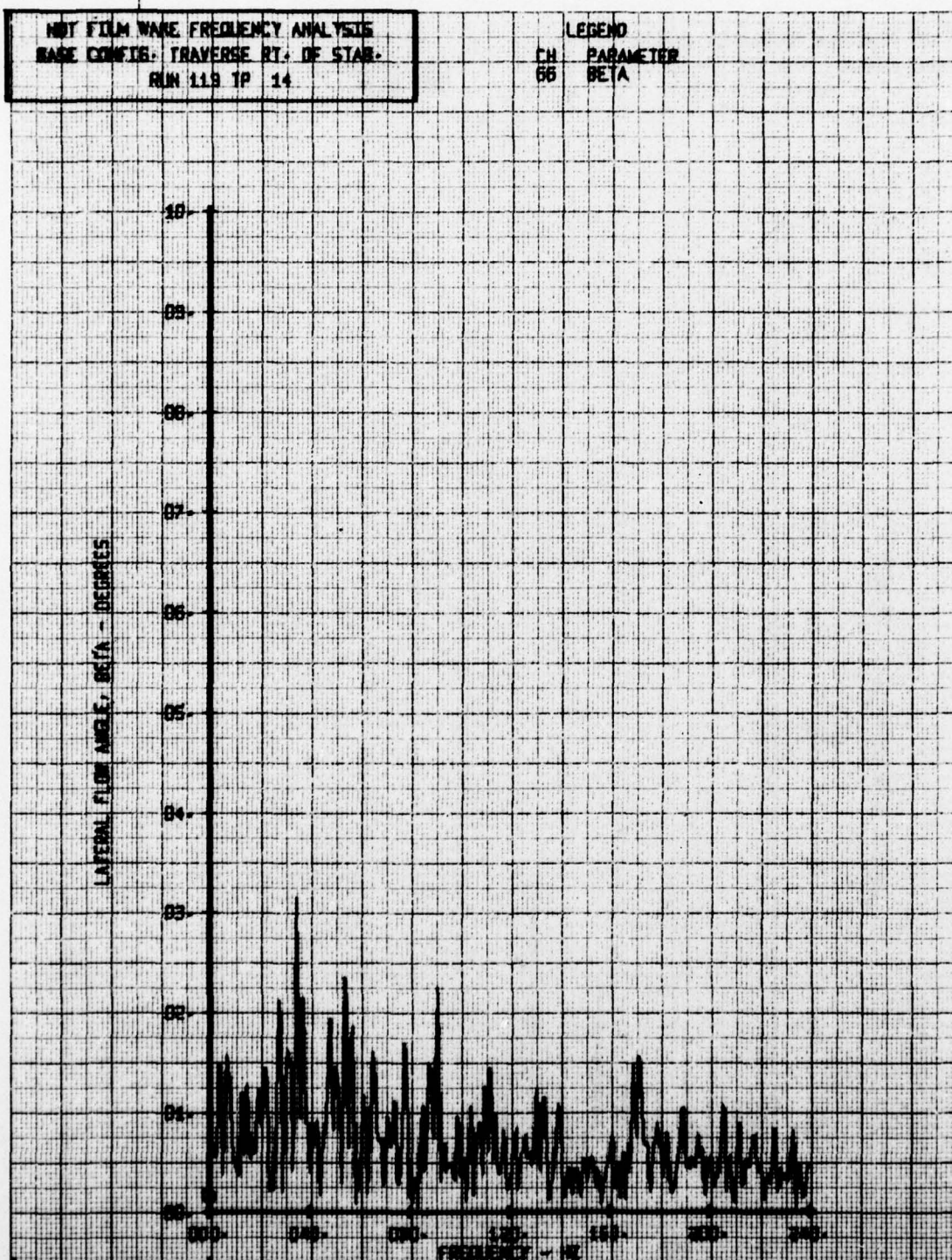
LEGEND
 CH PARAMETER
 66 BEJA

LATERAL FILM WAVE, BEJA - DEGREES



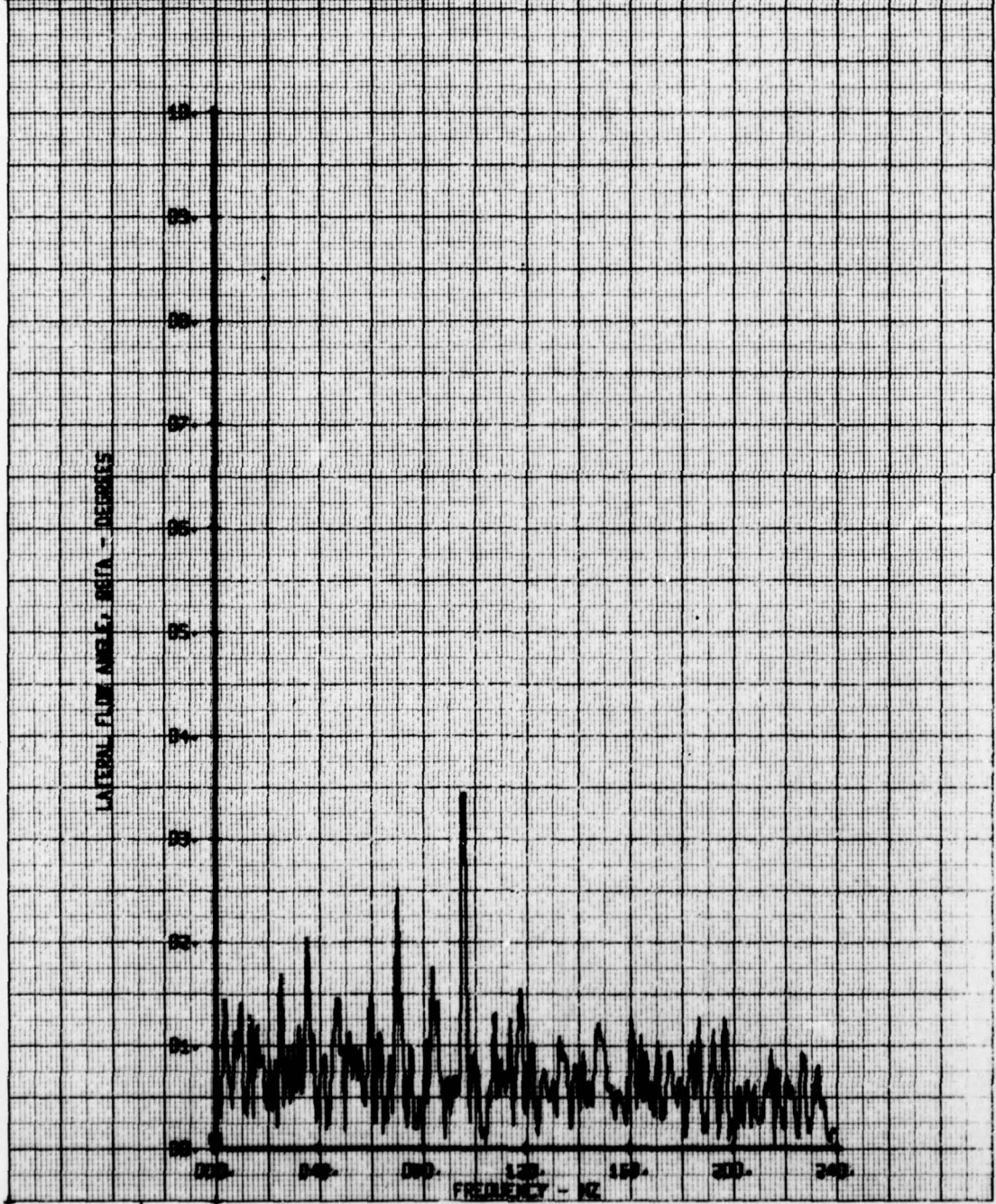
NOT FILM WARE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE RT. OF STAR.
RUN 119 TP 14

LEGEND
CH PARAMETER
66 BETA



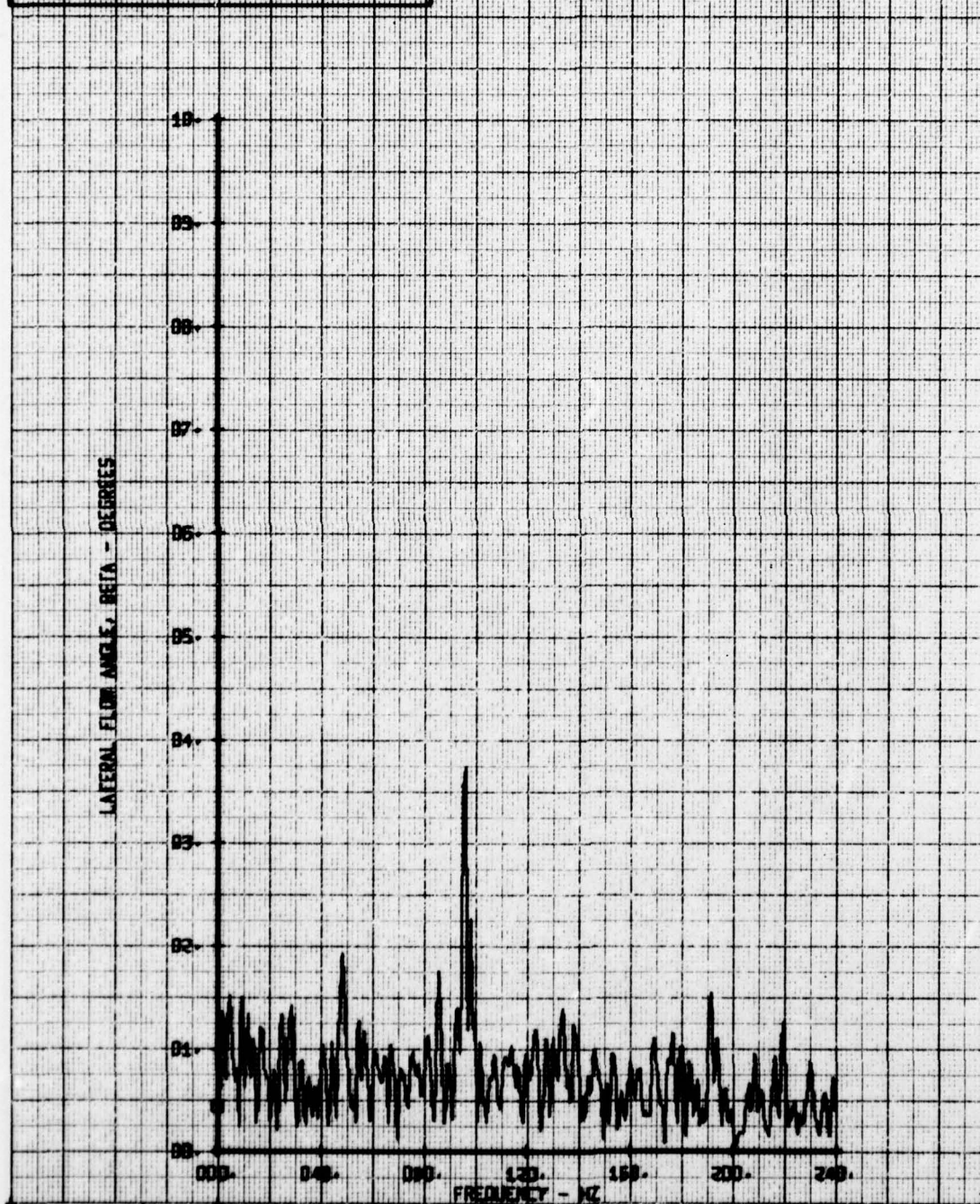
HOT FILM WIND FREQUENCY ANALYSIS
 BASE CODE: TRAVING BY: DE STAR:
 RUN 113 TP 18

LEGEND
 CM PARAMETER
 DE BETA



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFID- TRAVERSE RT. OF STAB.
RUN 118 TP 20

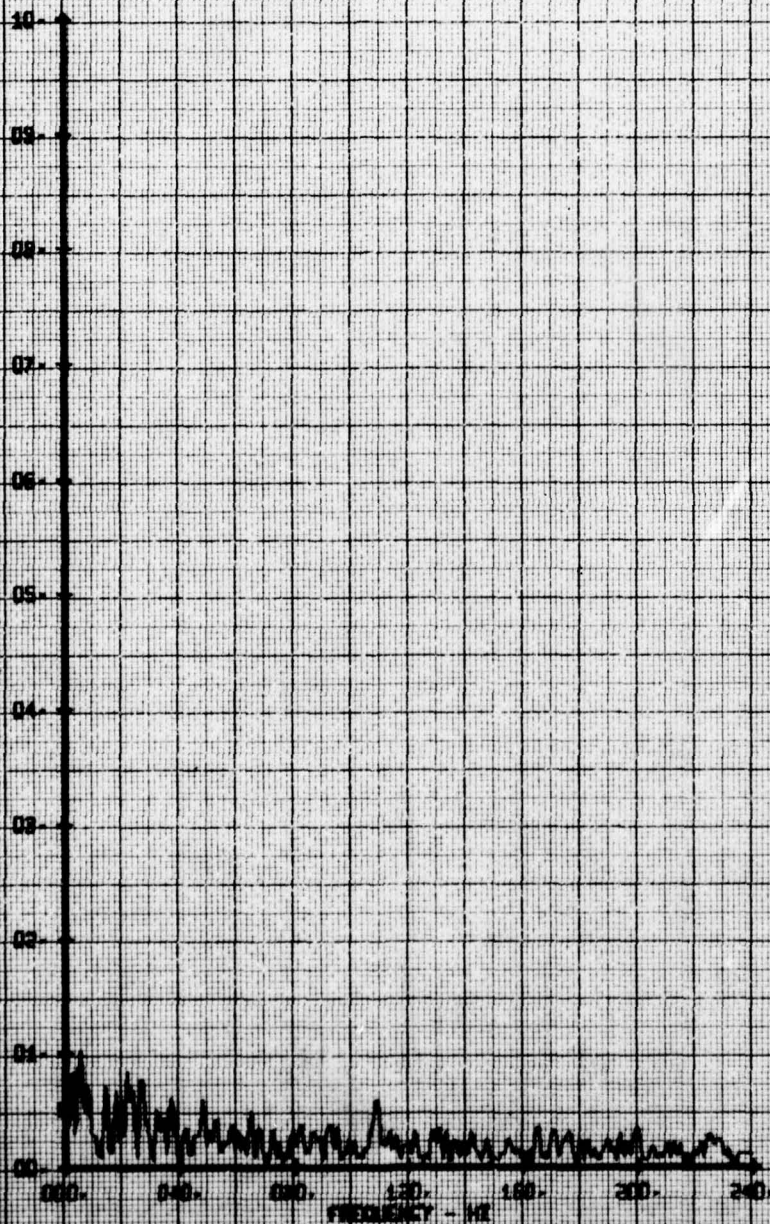
LEGEND
CM PARAMETER
55 BETA



NOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE RT. OF STAB.
RUN 119 TP 2

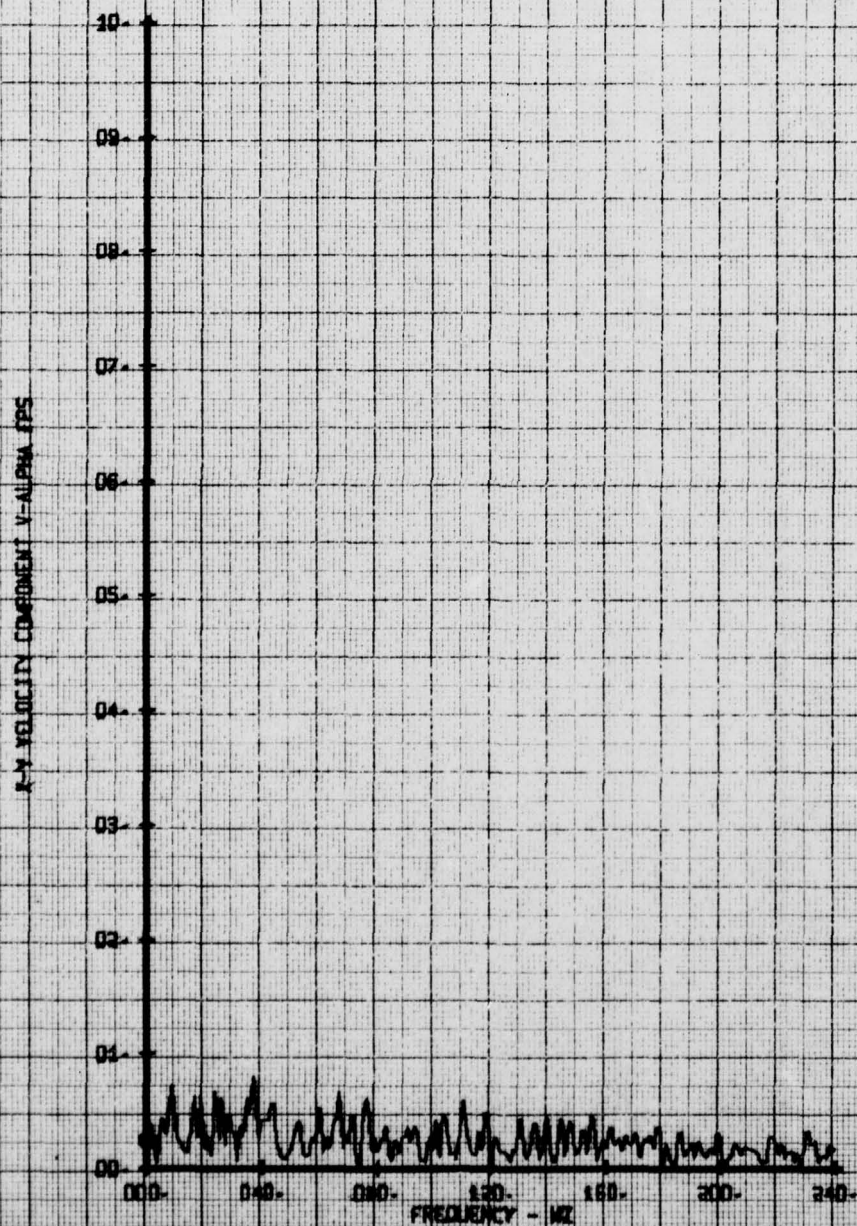
LEGEND
CH PARAMETER
65 V-ALPHA

2-M VOL/IN COEFFICIENT V-ALPHA (PS)



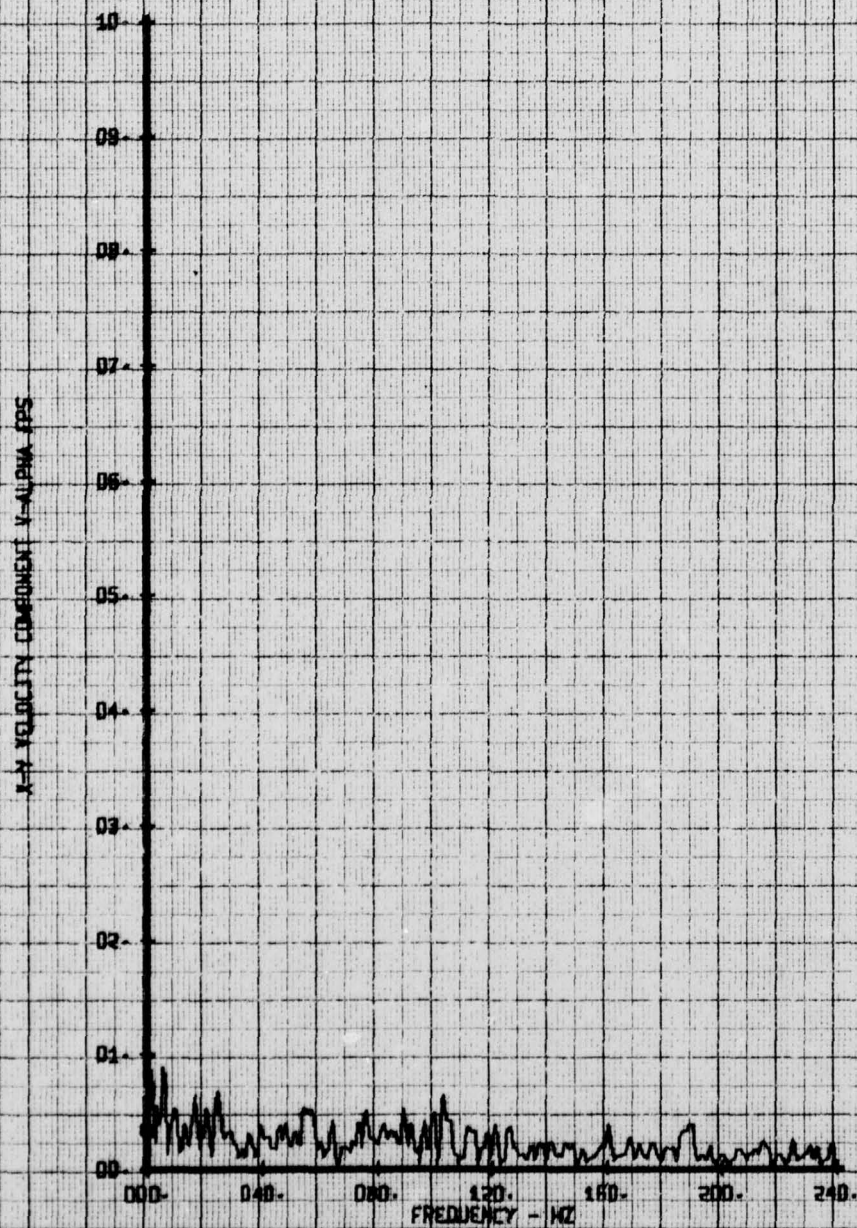
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE RT. OF STAB.
RUN 119 TP 5

LEGEND
CH 65
PARAMETER
V-ALPHA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE RT. OF STAB.
RUN 119 TP B

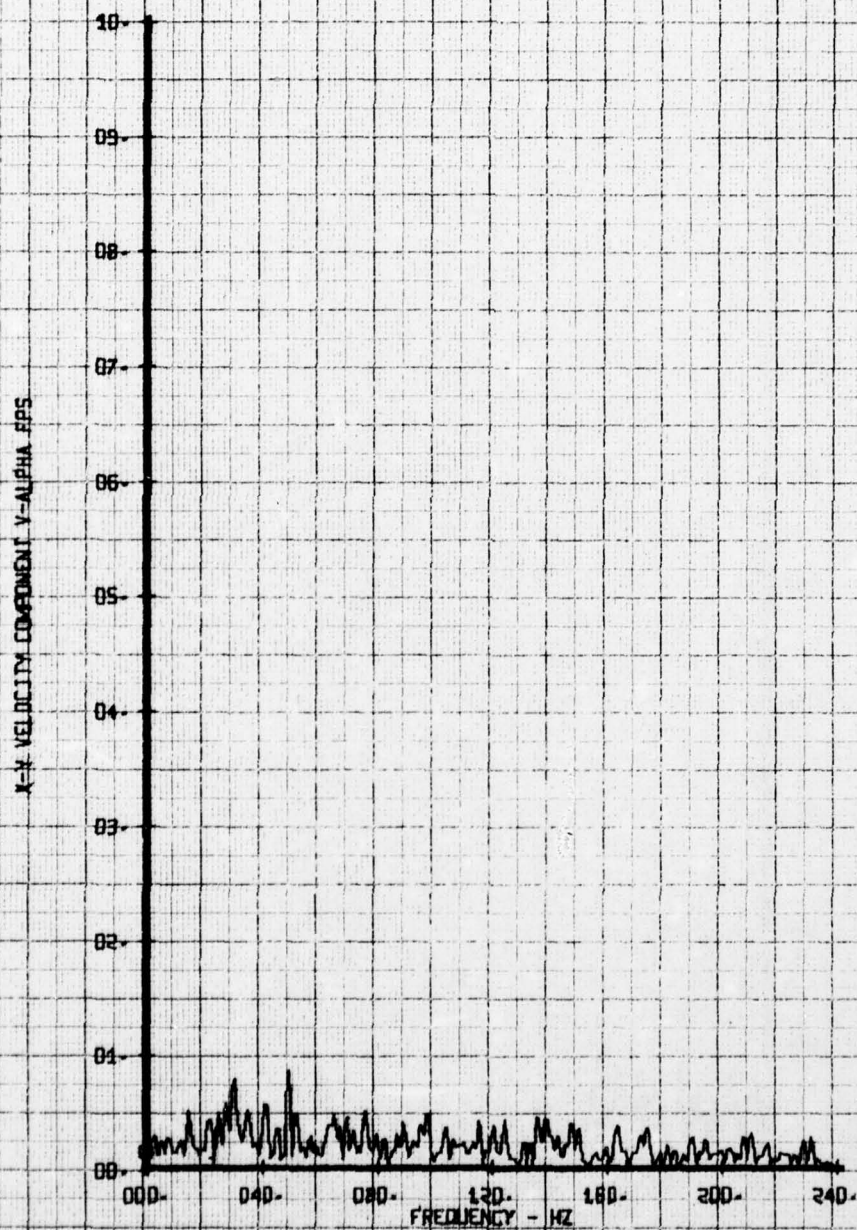
LEGEND
CN 65
PARAMETER
V-ALPHA



NOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG- TRAVERSE RT. OF STAR-
RUN 119 TP 3

LEGEND

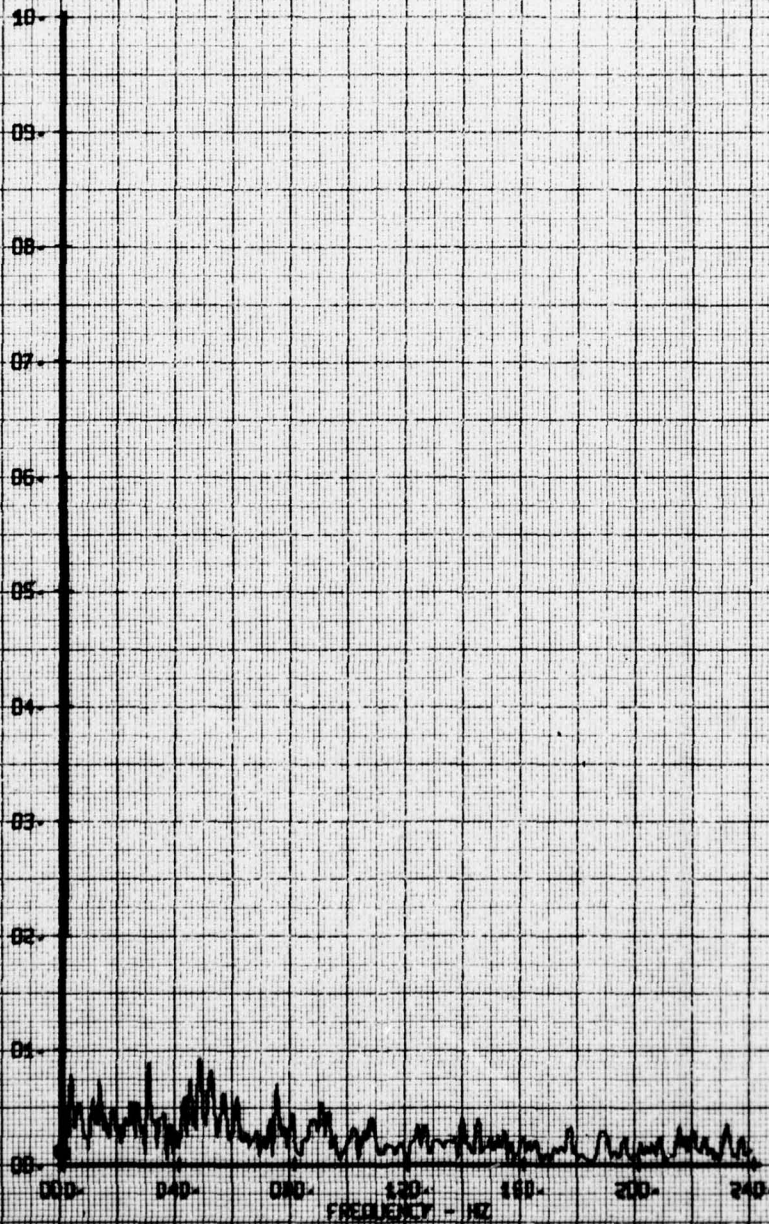
CH	PARAMETER
65	V-ALPHA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE RT. OF STAB.
RUN 119 TP 12

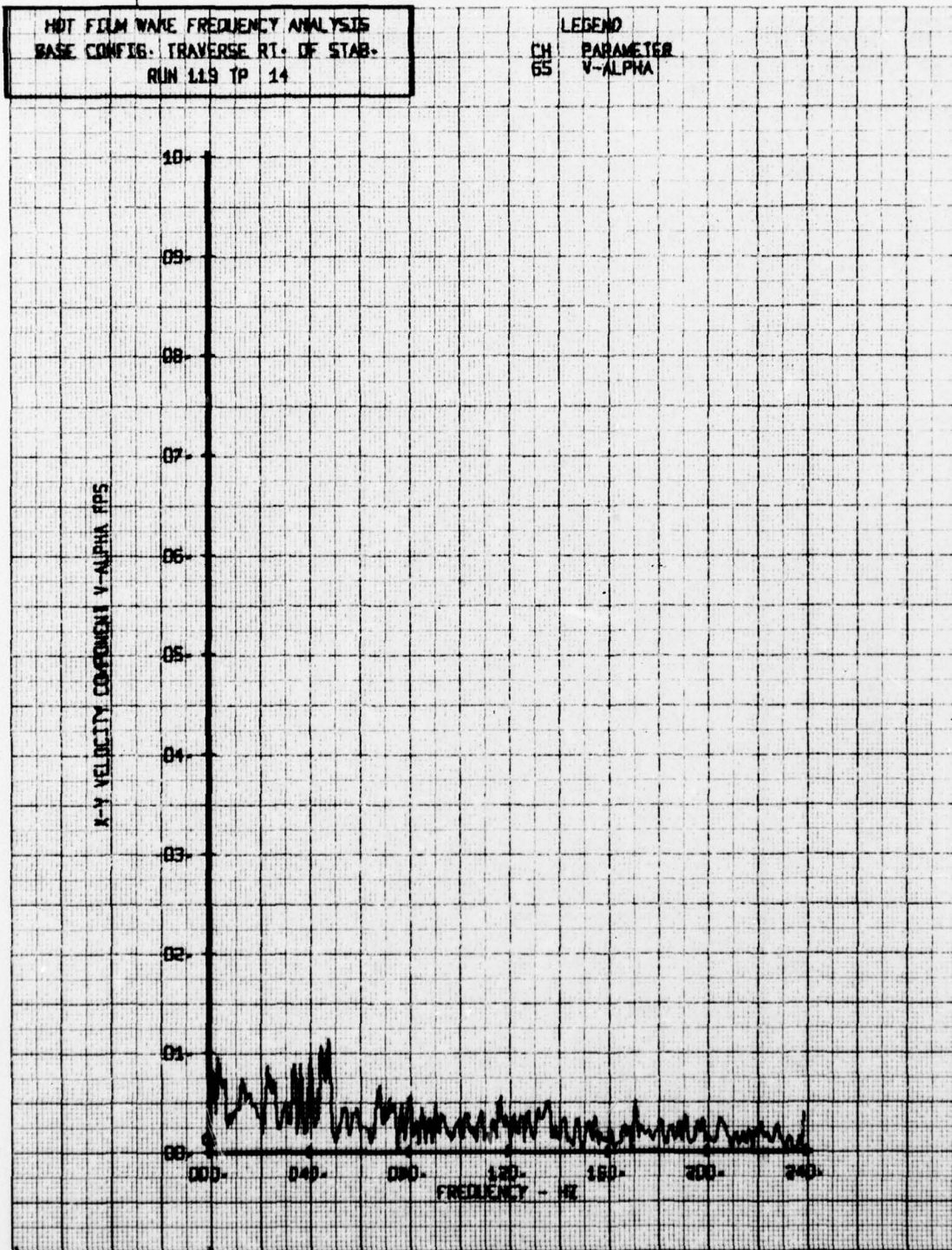
LEGEND
CH 65
PARAMETER
V-ALPHA

K-V VELOCITY COMPONENT V-ALPHA RMS



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG: TRAVERSE RT. OF STAB.
RUN 119 TP 14

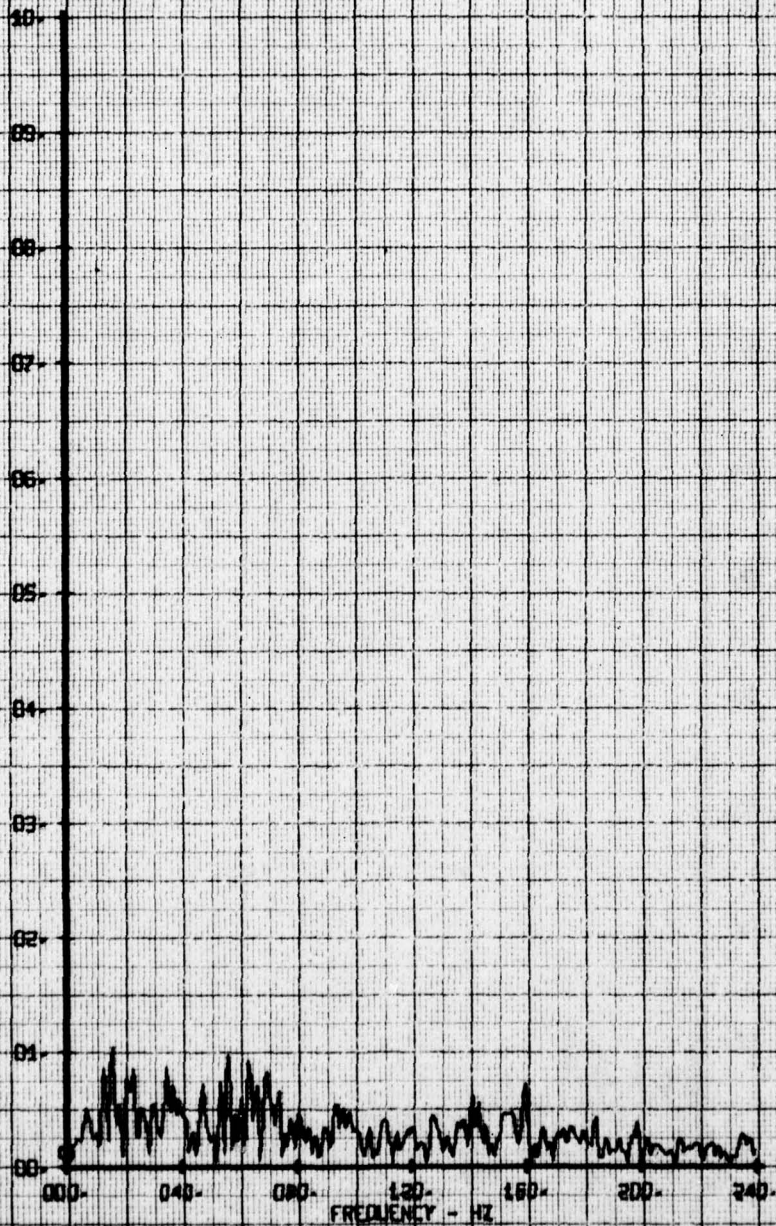
LEGEND
CH 65 PARAMETER
V-ALPHA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONTH. TRAVERSE RT. OF STAR.
RUN 113 TP 18

LEGEND
CH 65
PARAMETER
V-ALPHA

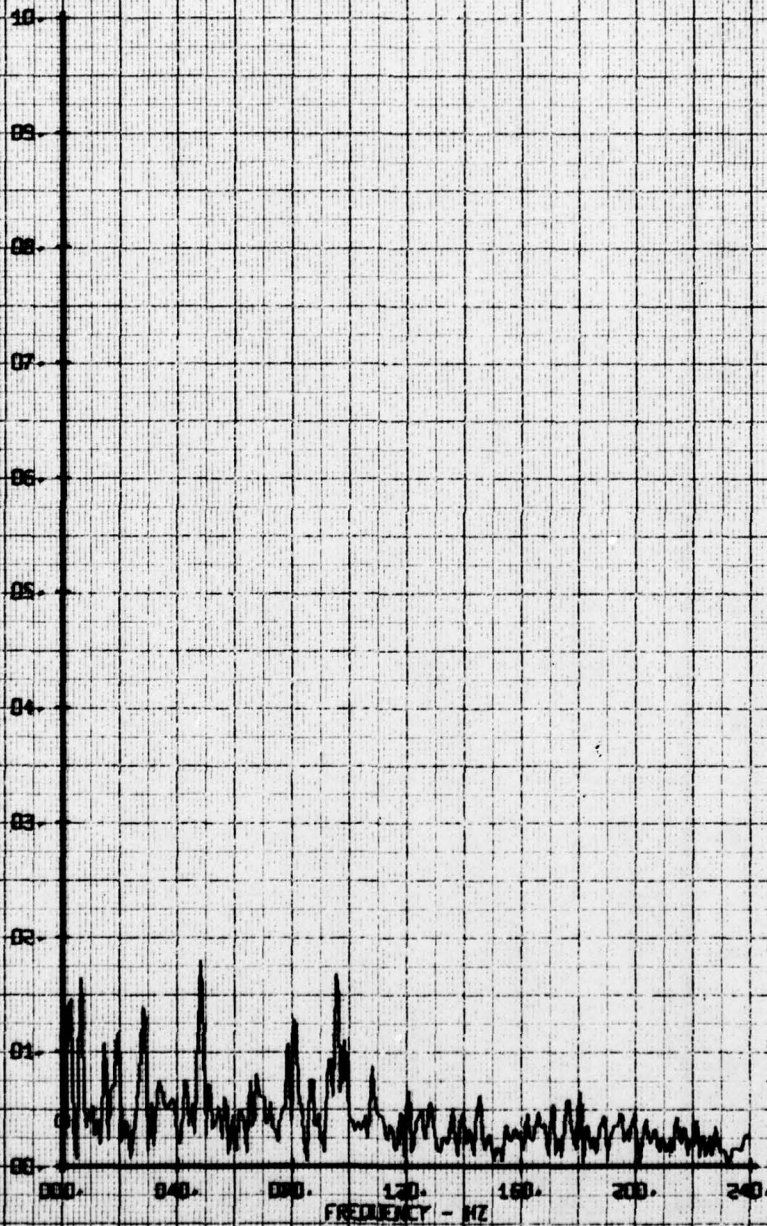
X-Y VELOCITY COMPONENT V-ALPHA FPS

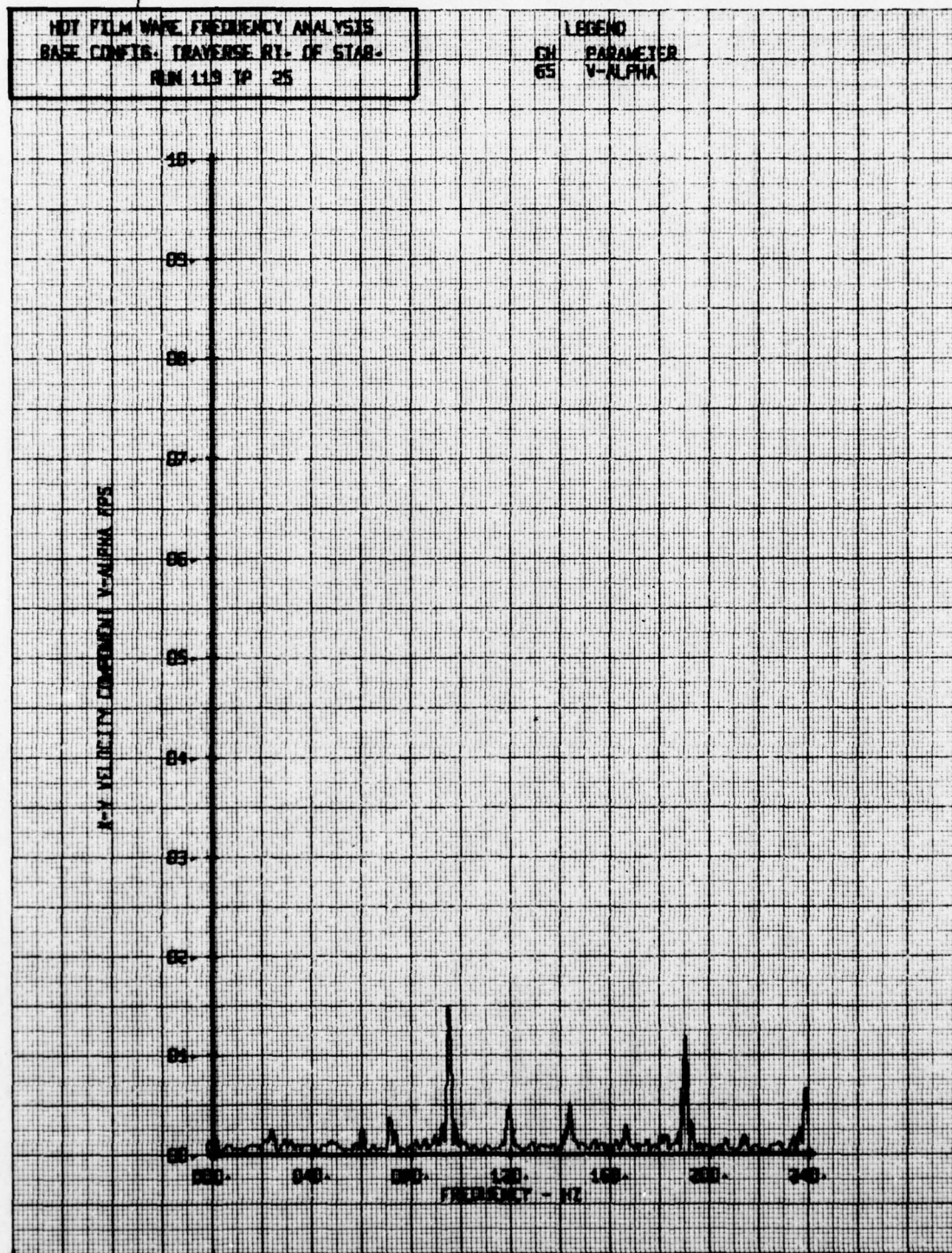


HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE HT. OF STAB.
RUN 113 TP 20

LEGEND
CH PARAMETER
65 V-ALPHA

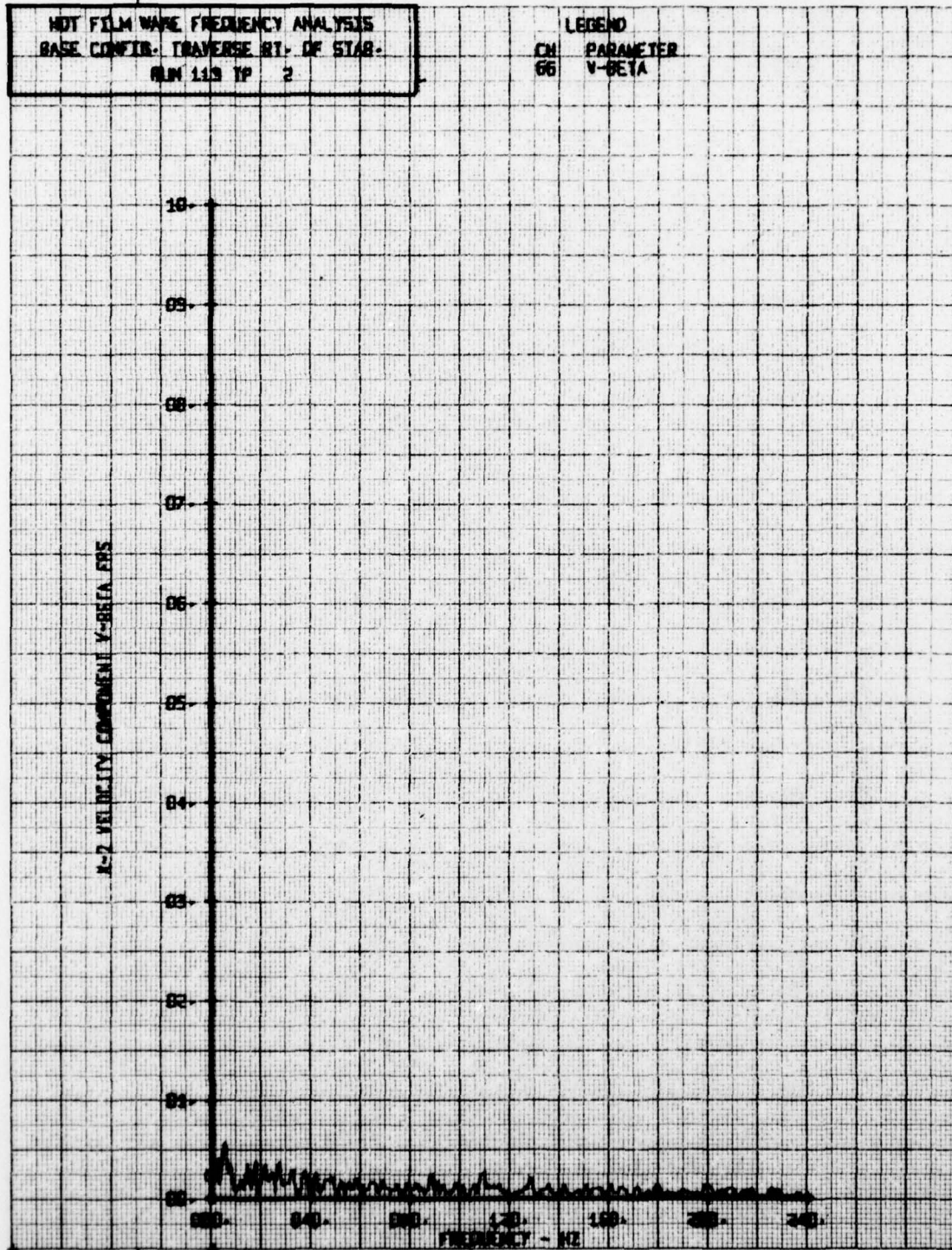
X-Y VELOCITY COMPONENT V-ALPHA FPS





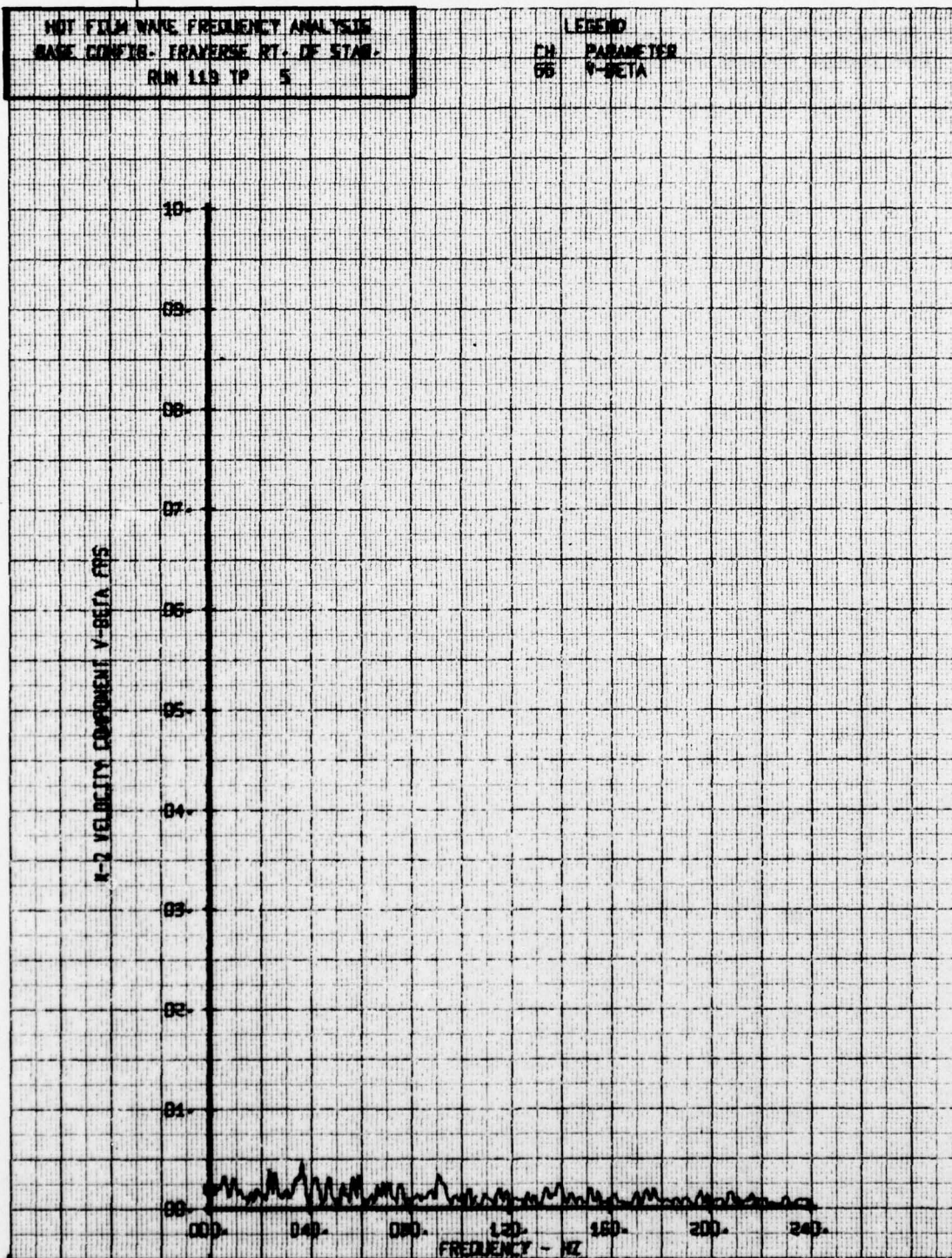
HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIR. TRAVERSE RT. OF STAR.
RUN 113 TP 2

LEGEND
CH PARAMETER
66 V-BETA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE RT. DE STAB.
RUN 119 TP 5

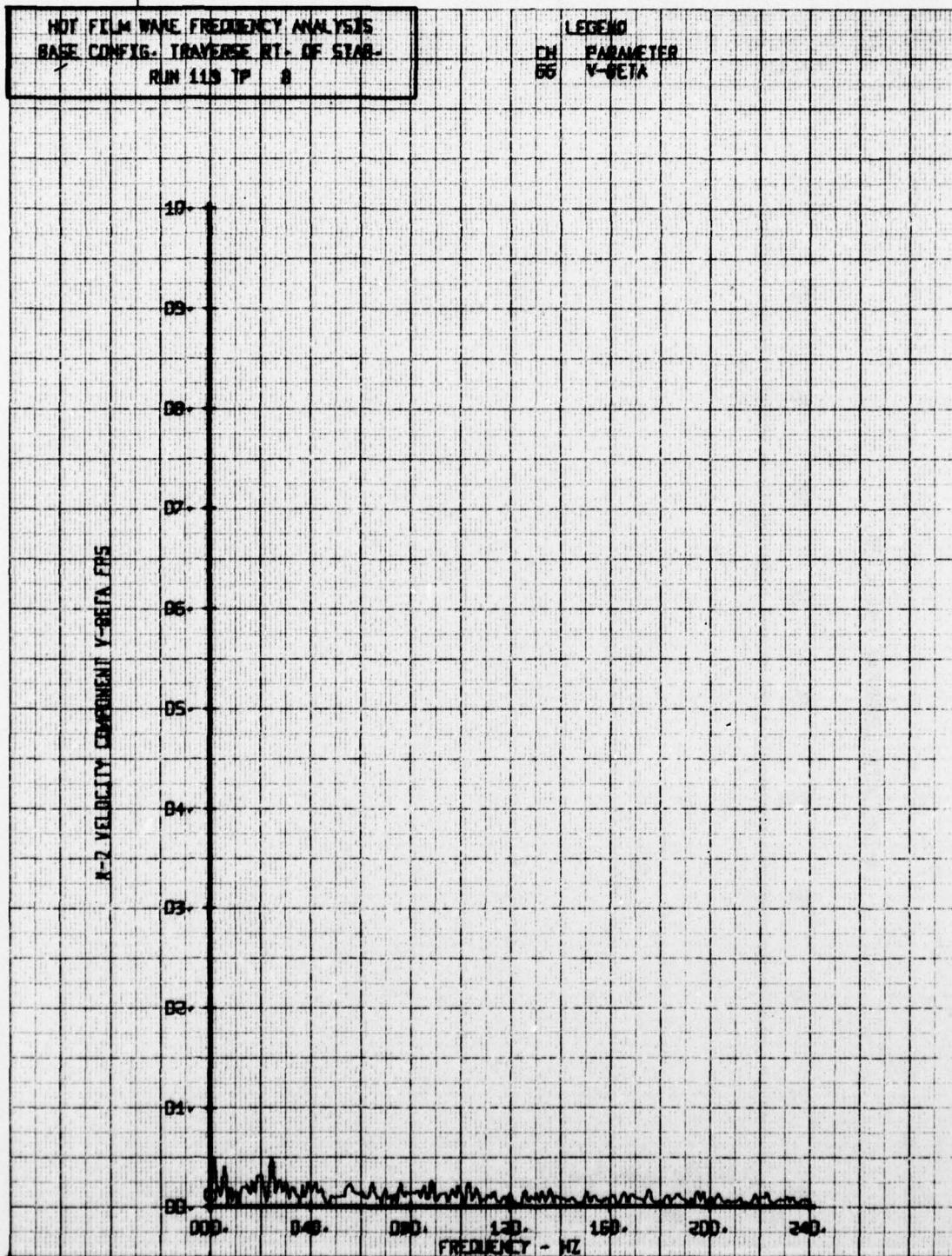
LEGEND
CH PARAMETER
05 P-BETA



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE RT. OF STAR-
7
RUN 118 TP 8

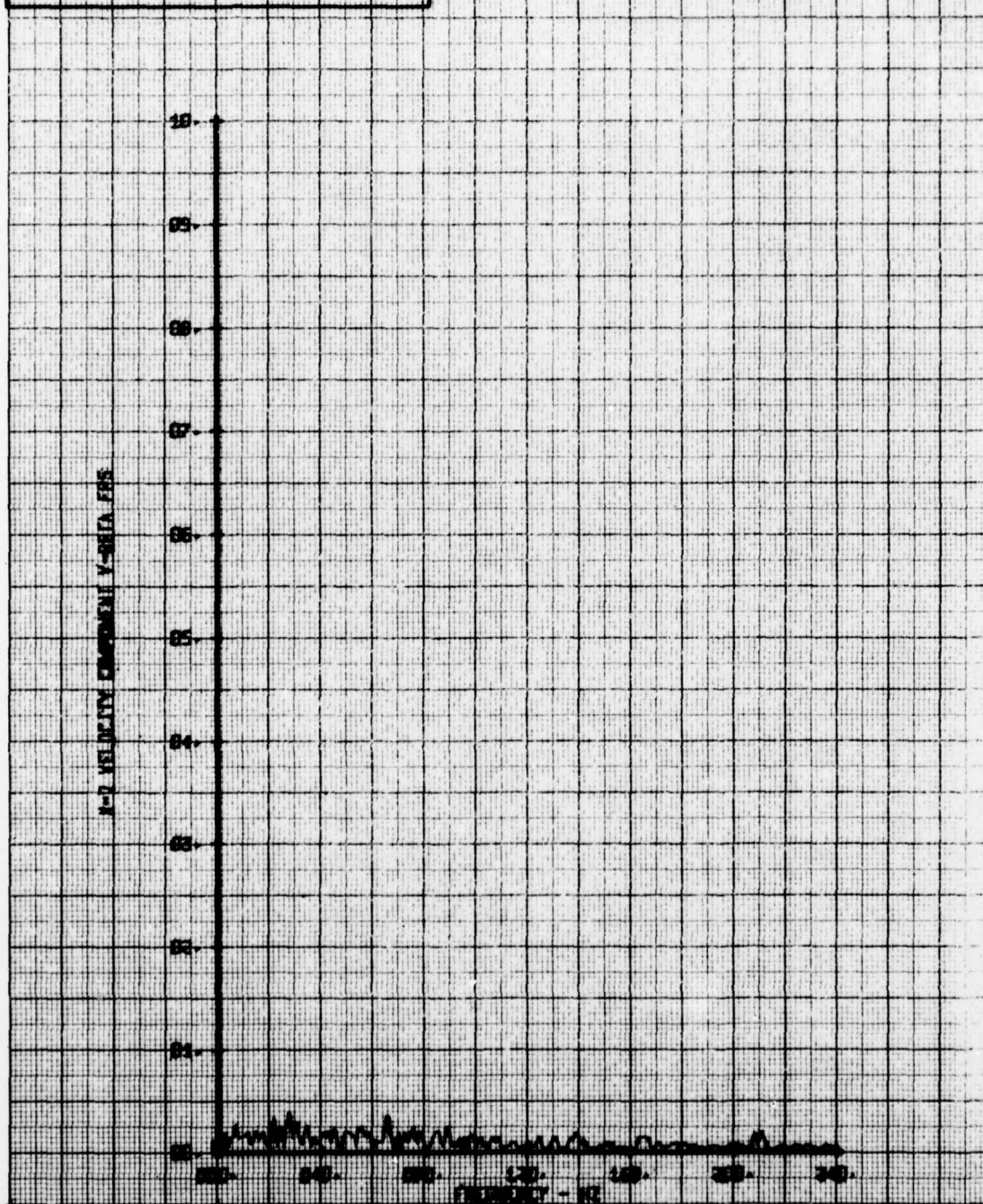
LEGEND

CH PARAMETER
55 V-BETA



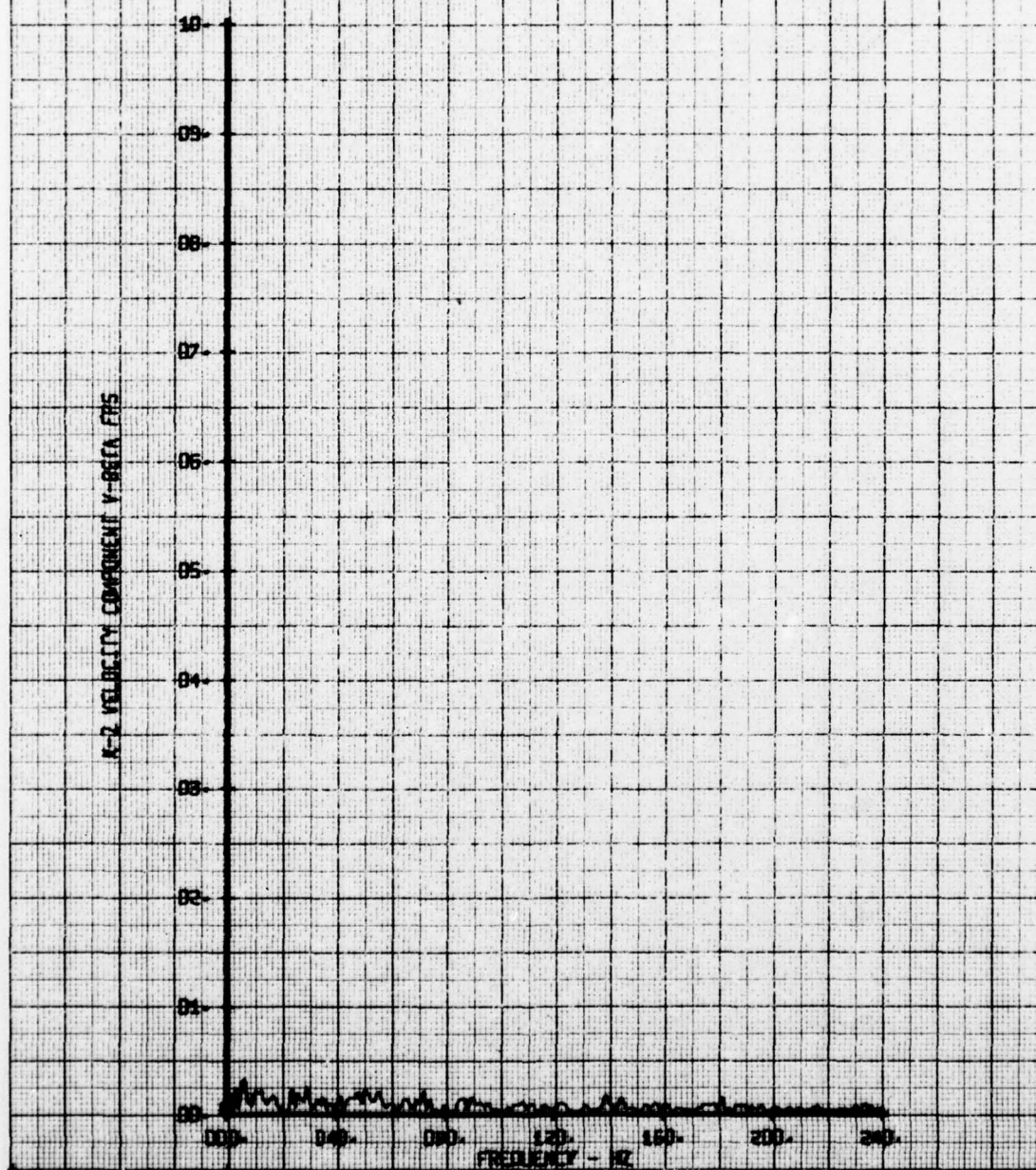
HOT FILM WAVE FREQUENCY ANALYSIS
 BASE CONFIG. TRAVERSE RT. OF STAB.
 RUN 113 TP 3

LEGEND
 CH 66 PARAMETER
 V-BETA



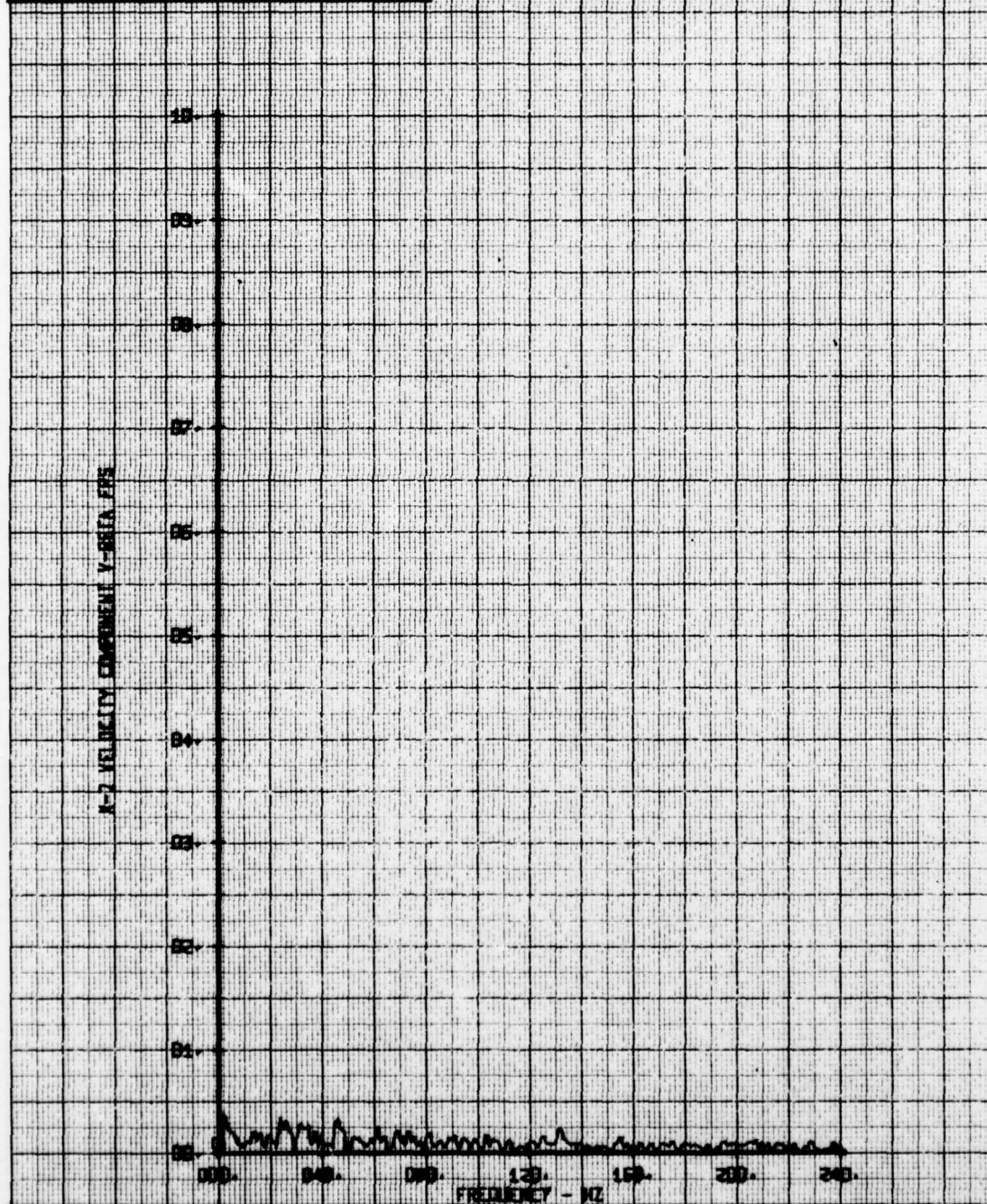
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE RT. OF STAB.
RUN 119 TP 12

LEGEND
CH 66
PARAMETER
V-BETA



HOT FILM WIRE FREQUENCY ANALYSIS
 NAME: CONYER, THOMAS RYAN OF STAR-
 RUN 1101 TP 14

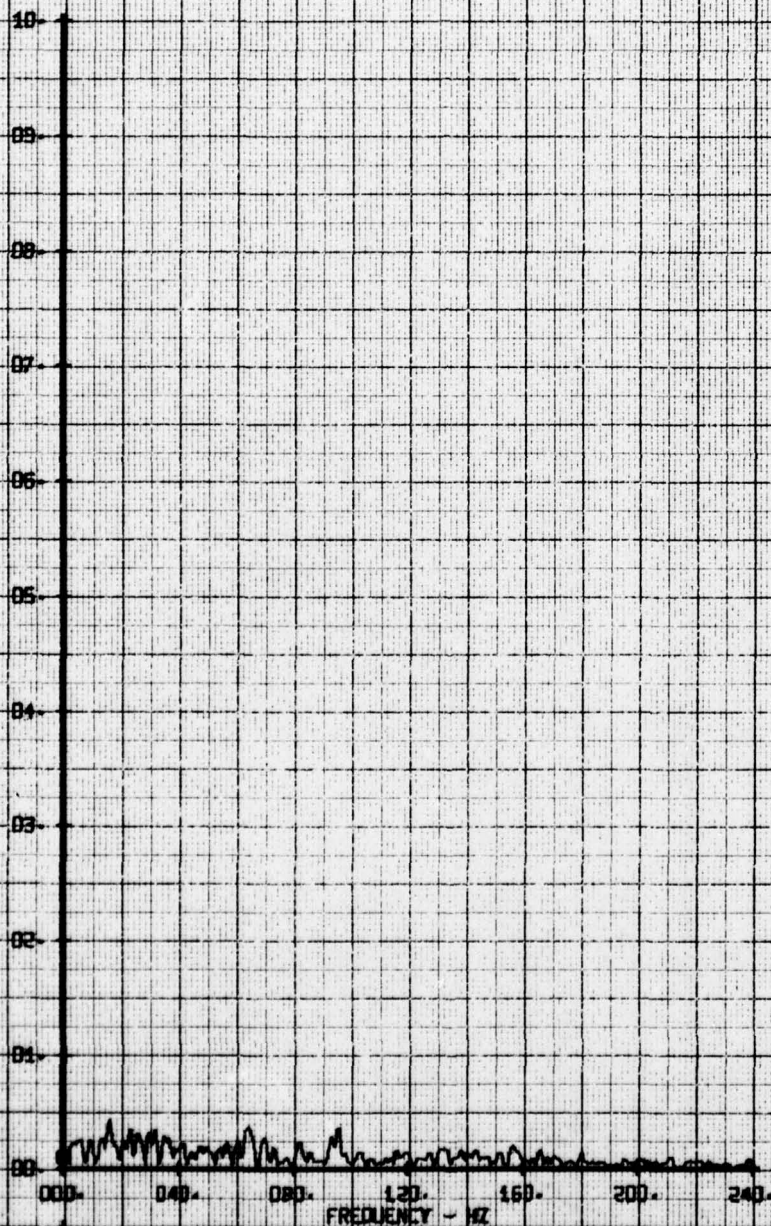
LEGEND
 CH PARAMETER
 00 V-BETA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG- TRAVERSE RT. OF STAB-
RUN 119 TP 18

LEGEND
CN PARAMETER
65 V-BETA

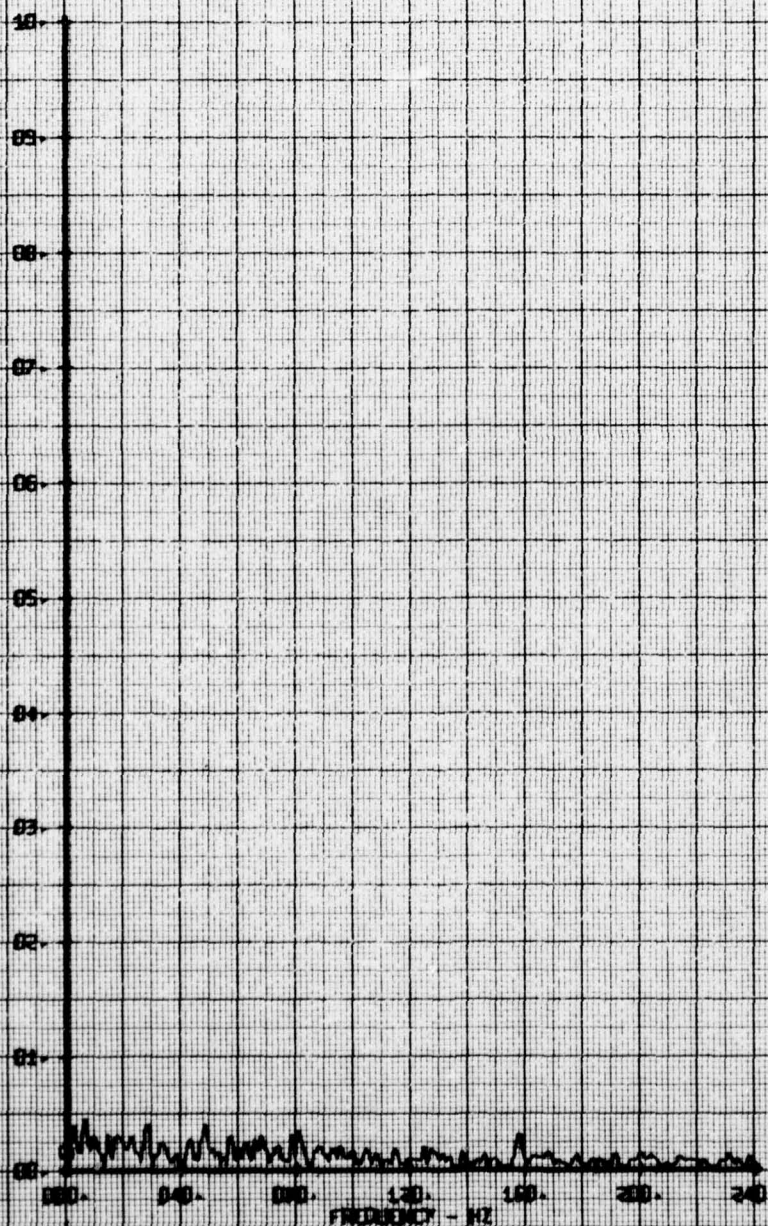
X-2 VELOCITY COMPONENT V-BETA FFS



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONTS. TRAVERSE RT. OF STAR-
RUN 119 TP 30

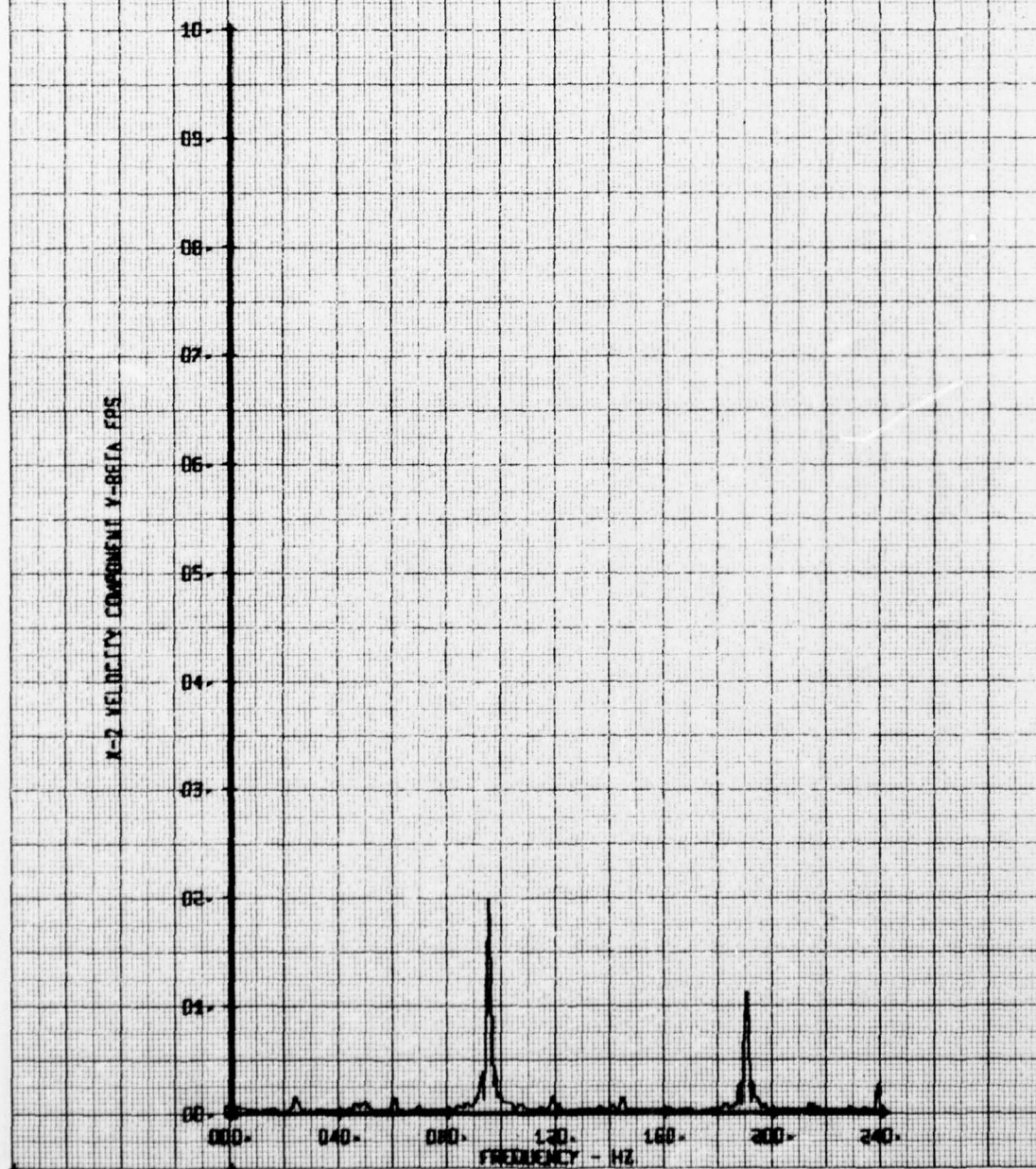
LEGEND
CH PARAMETER
66 V-BETA

X-2 VELOCITY COMPONENT V-BETA FRS



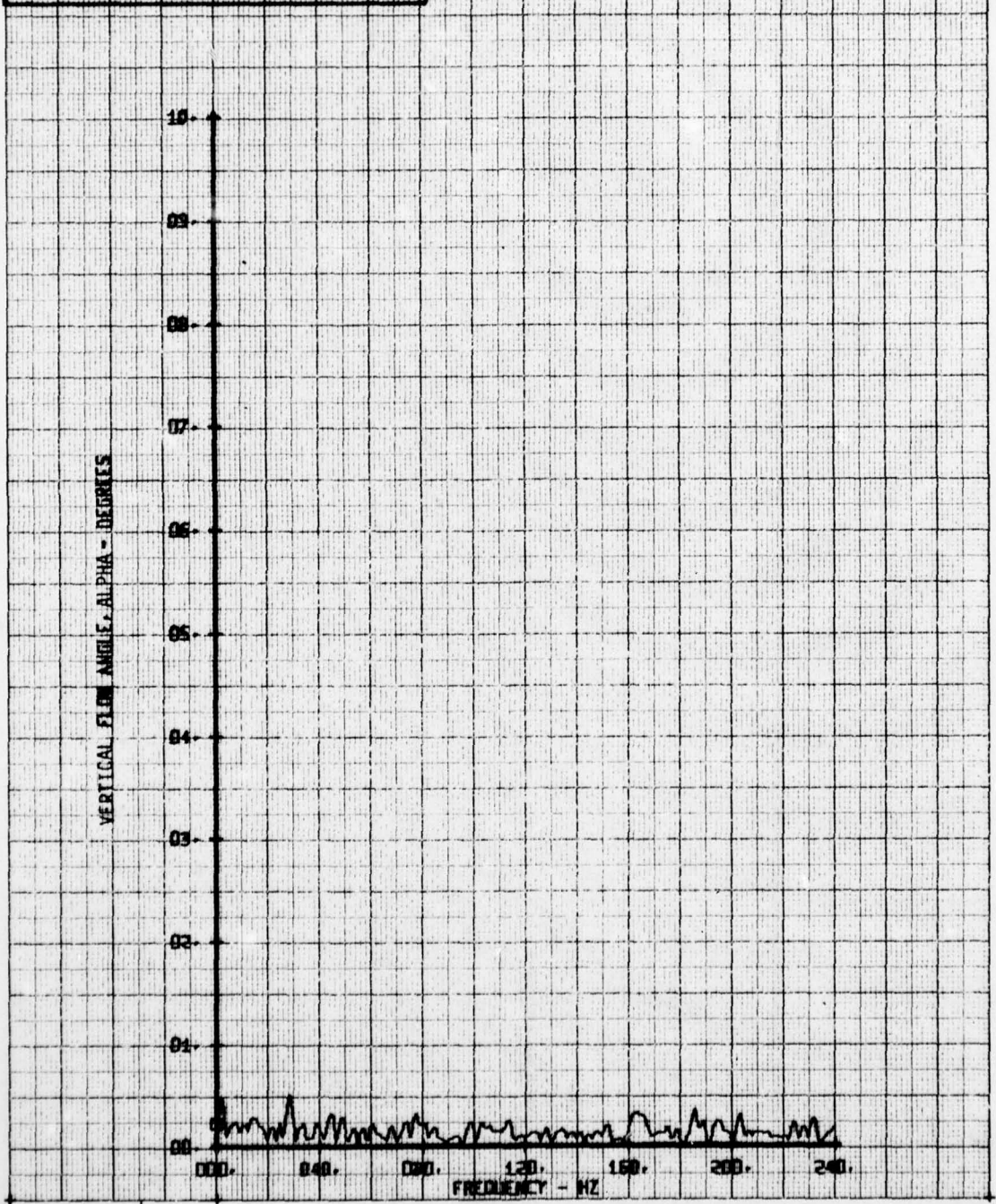
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. TRAVERSE RT. OF STAR.
RUN 119 TP 25

LEGEND
CH 66 PARAMETER
V-BETA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. EFFECT OF STAB.
RUN 121 TP 3

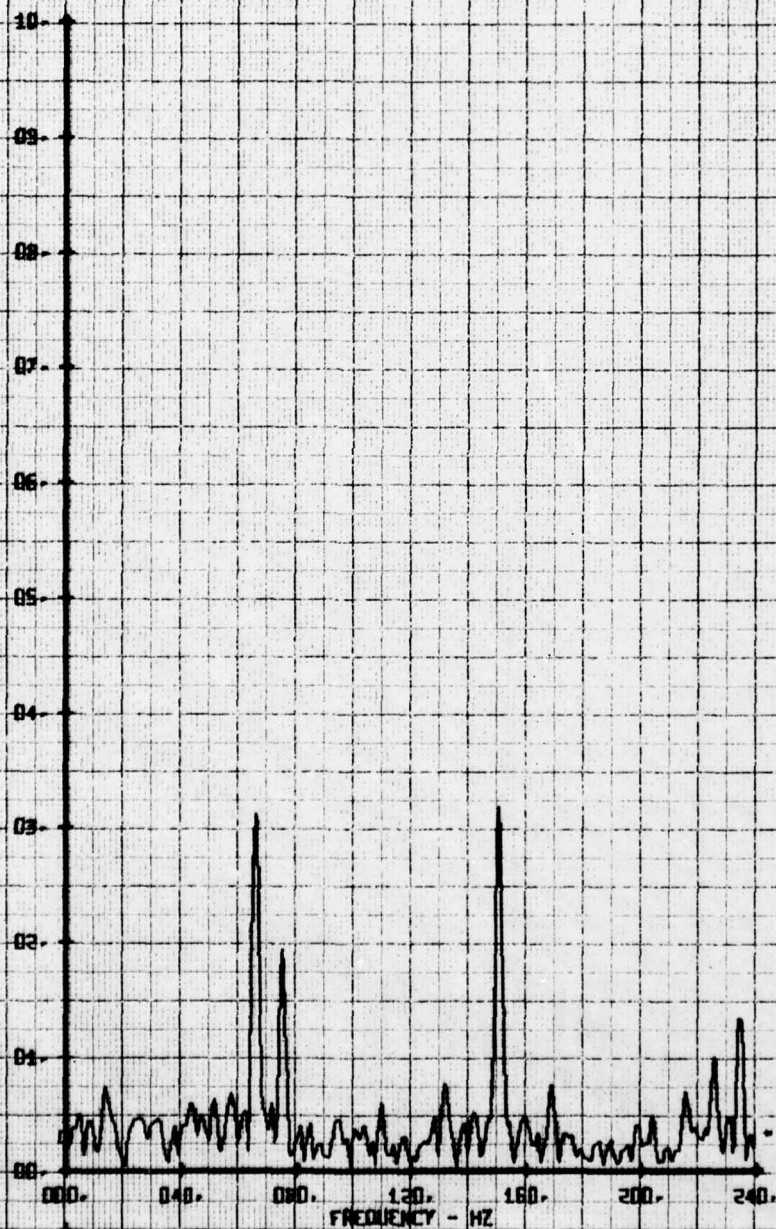
LEGEND
CH 66
PARAMETER
ALPHA



NOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. EFFECT OF STAB.
RUN 121 TP 4

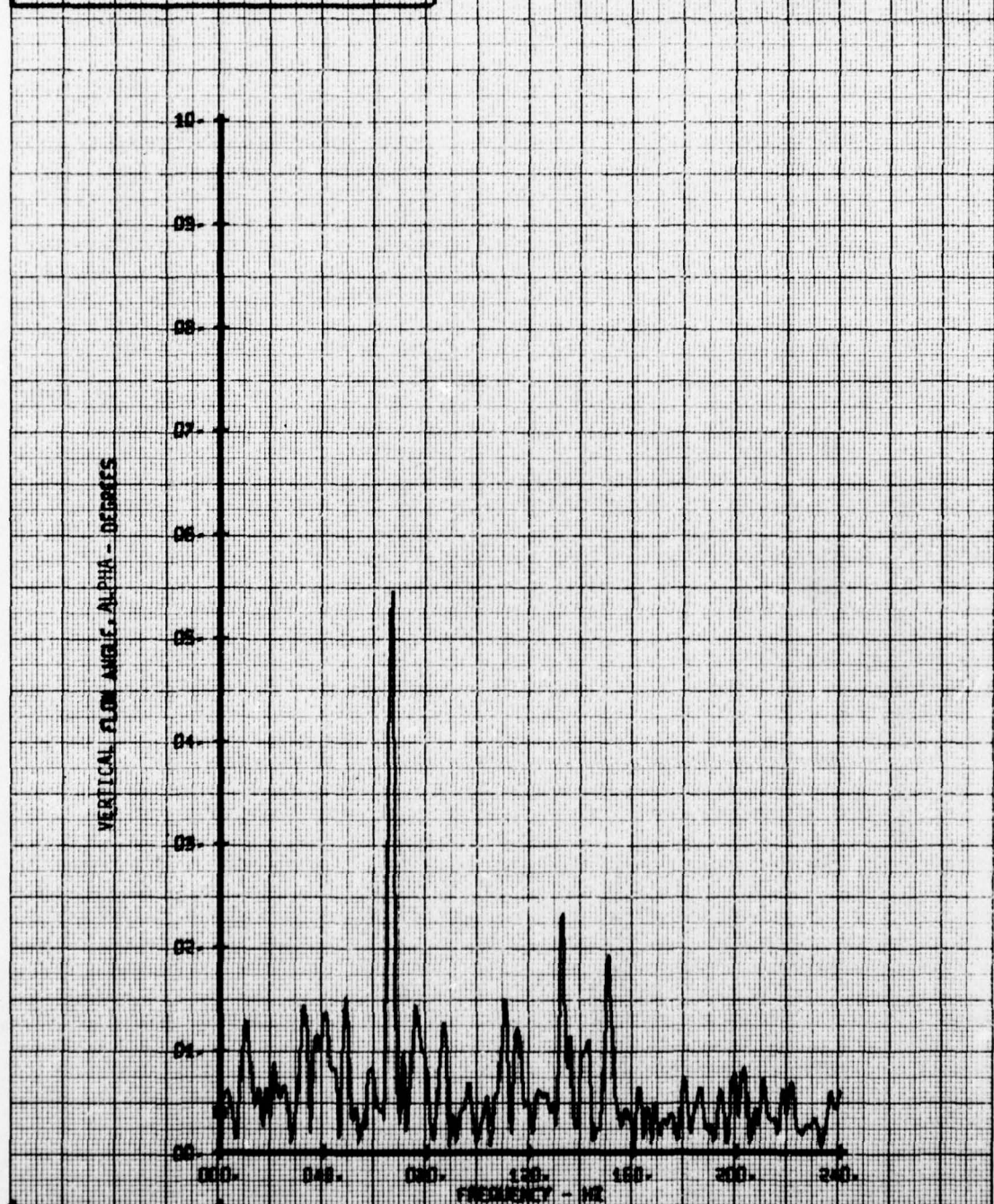
LEGEND
CH 66
PARAMETER ALPHA

VERTICAL FLOW ANGLE, ALPHA - DEGREES



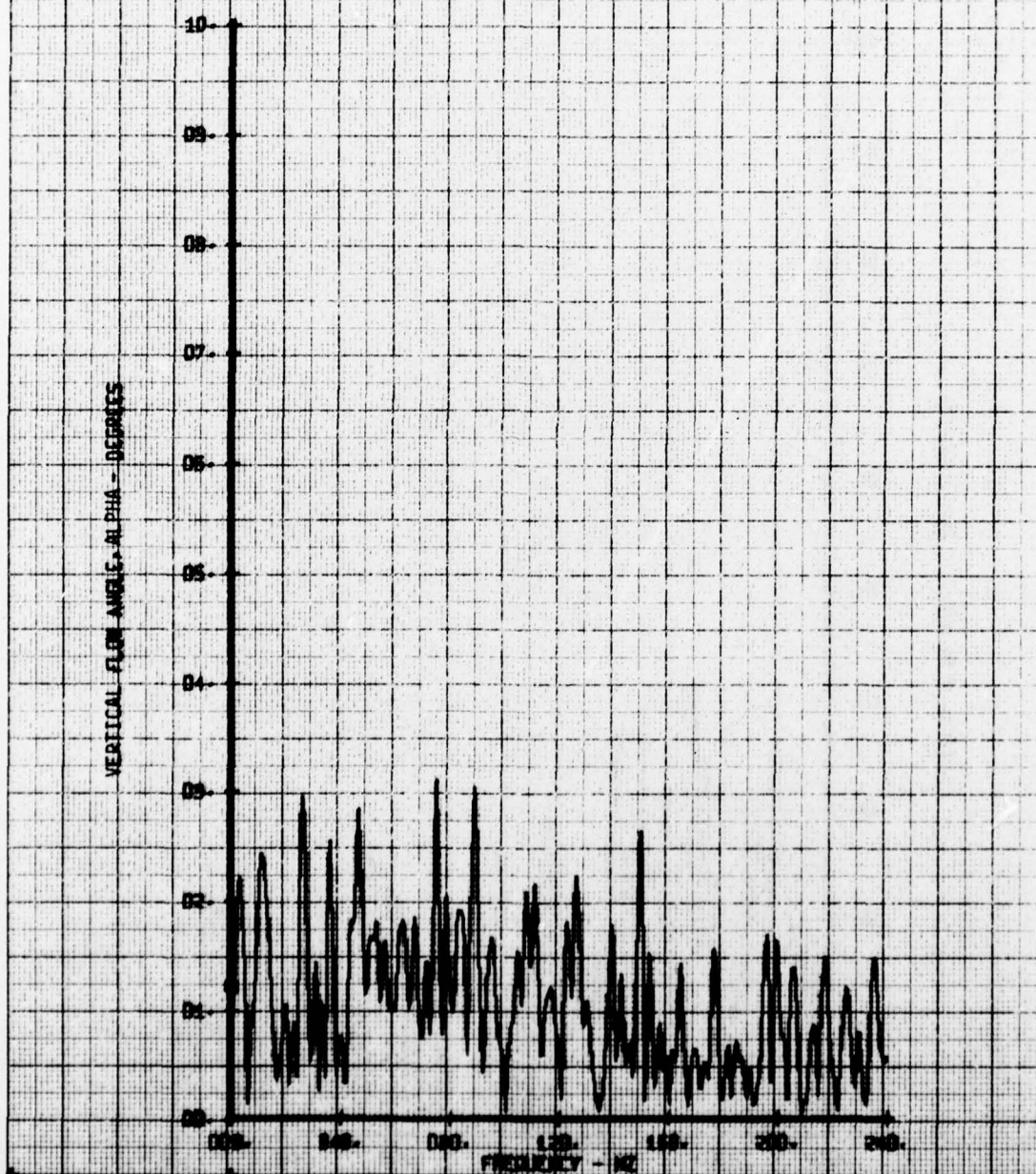
NOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG- EFFECT OF STAR-
RUN 121 TP 5

LEDENO
CH 66
PARAMETER
ALPHA



HOT FILM WIRE FREQUENCY ANALYSIS
BASE CONFIG. EFFECT OF STAB.
RUN 121 TP B

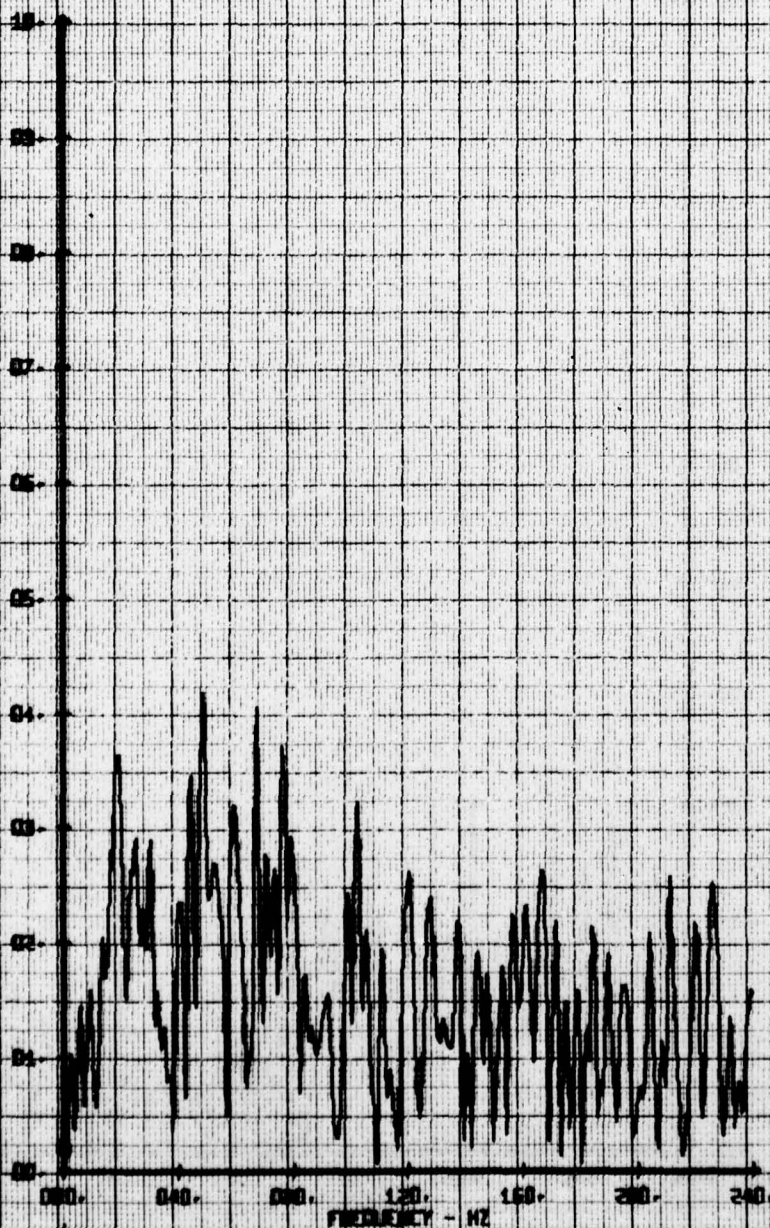
LEGEND
CM PARAMETER
66 ALPHA



NOT FILM WAVE FREQUENCY ANALYSIS
BASE CONTIN. EFFECT OF STAB-
RIN 121 TP 10

LEGEND
CH PARAMETER
66 ALPHA

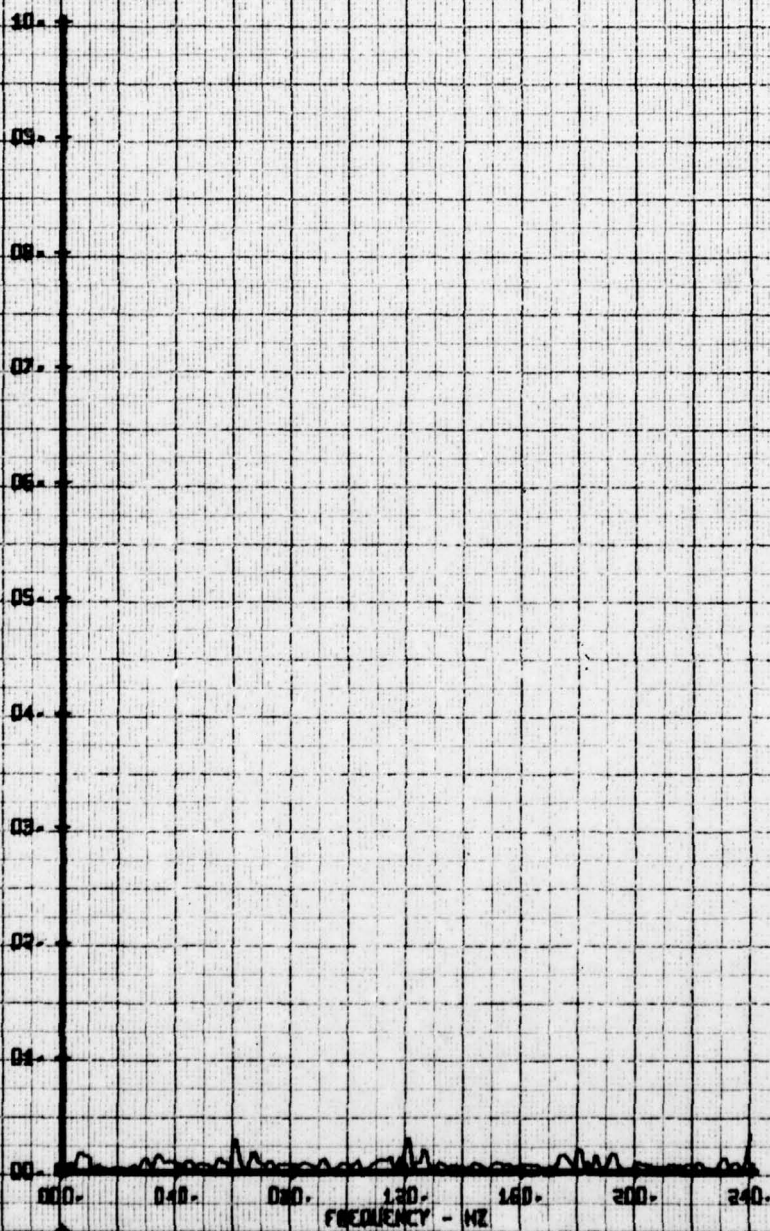
VERTICAL FLOW ANGLE, ALPHA - DEGREES



NOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. EFFECT OF STAB.
RUN 121 VP 3

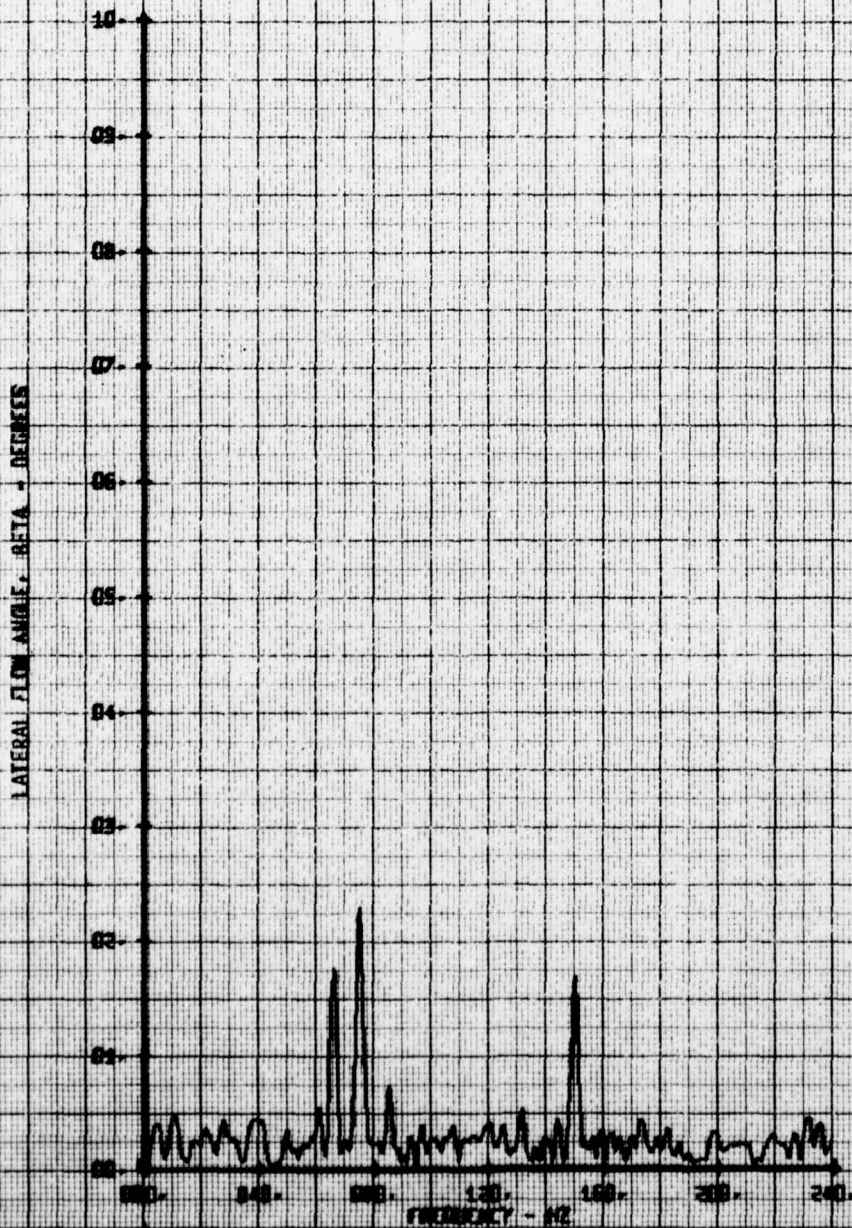
LEGEND
CH 65
PARAMETER
BETA

LATERAL FLOW ANGLE, BETA - DEGREES



NOT FILM WARE FREQUENCY ANALYSIS
BASE CONFIG: EFFECT OF STAB.
RUN 121 TP 4

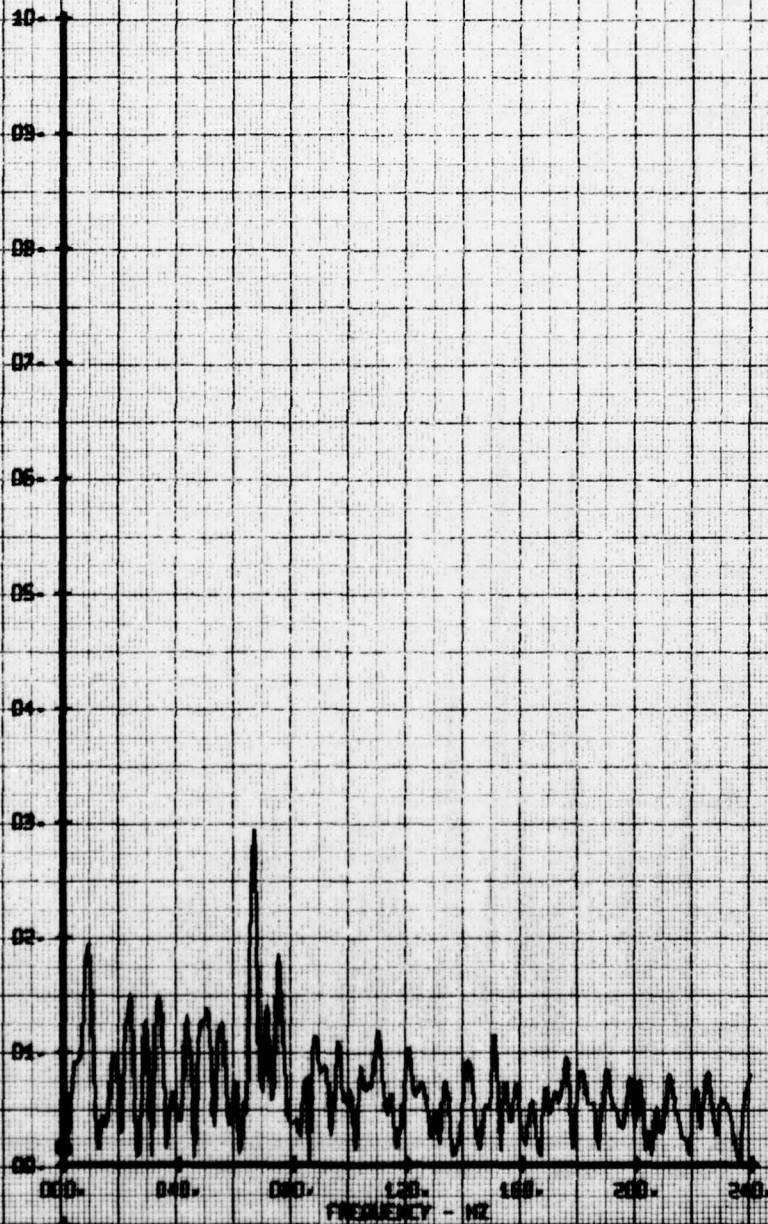
LEGEND
CH PARAMETER
65 BETA



NOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. EFFECT OF STAR.
RUN 121 TP 5

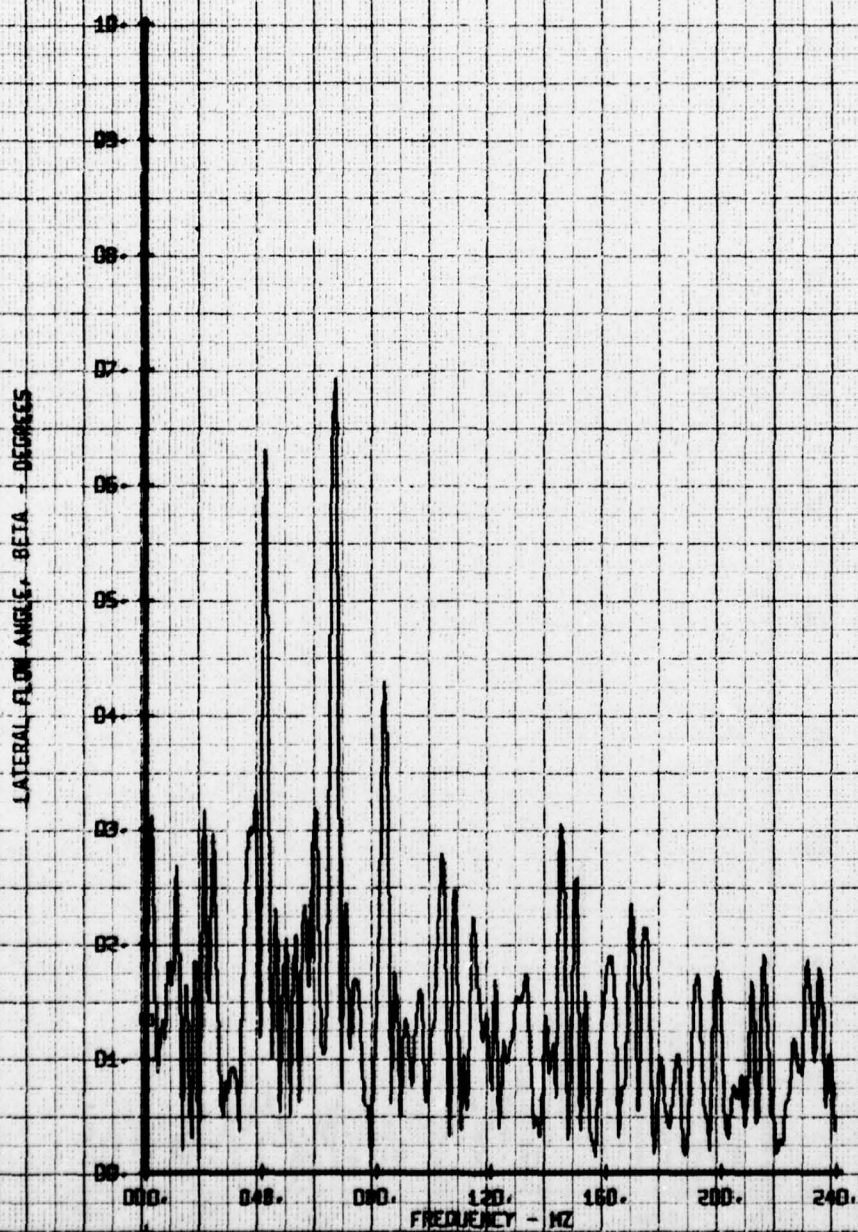
LEGEND
CM
65
PARAMETER
BETA

LATERAL FLOW ANGLE, BETA - DEGREES



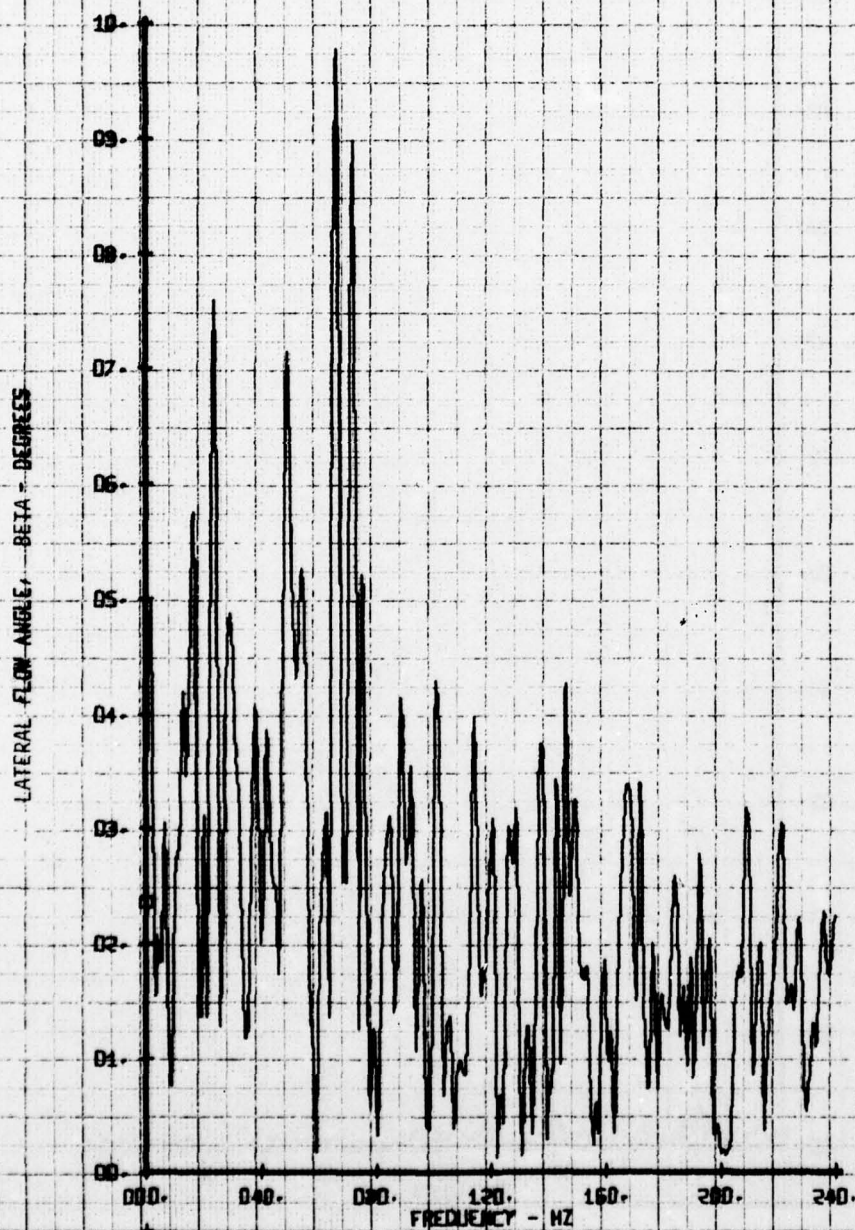
HOT FILM WIRE FREQUENCY ANALYSIS
BASE CONFIG. EFFECT OF STAR.
RUN 121 TP 3

LEGEND
CM PARAMETER
65 BETA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. EFFECT OF STAB.
RUN 121 TP 10

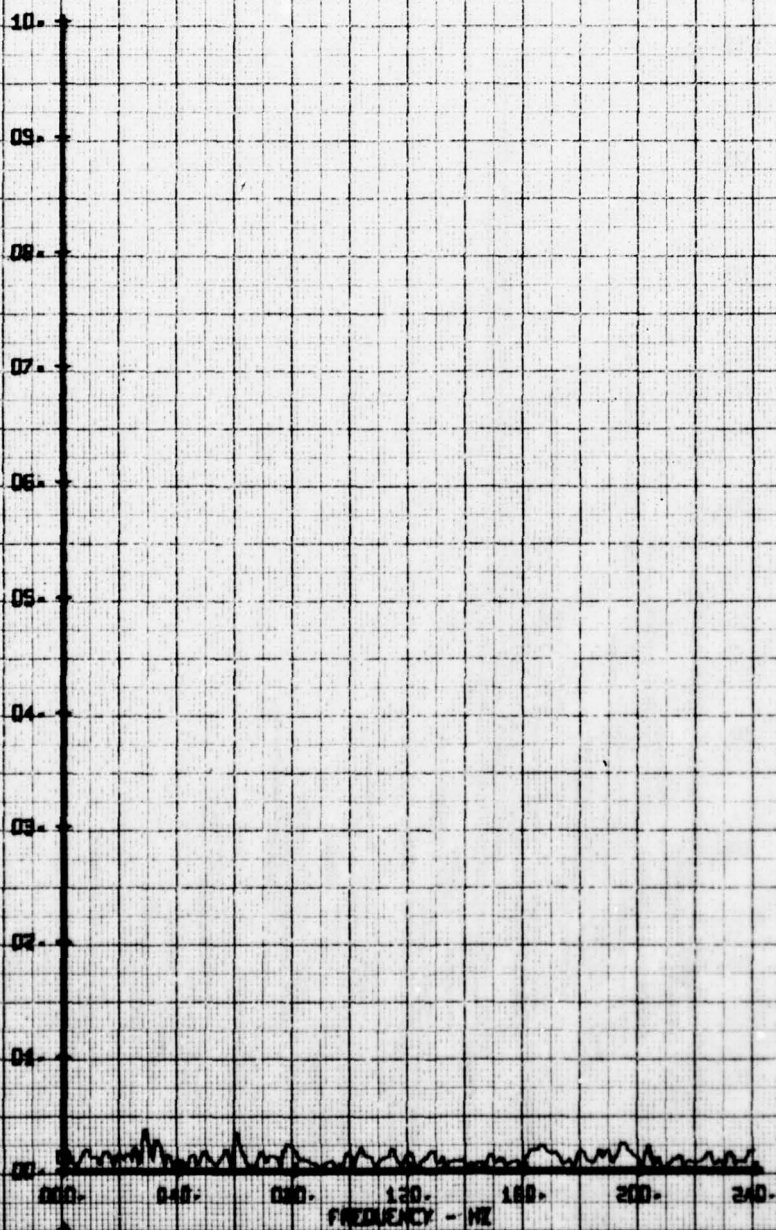
LEGEND
CH PARAMETER
65 BETA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. EFFECT OF STAB.
RUN 121 TP 3

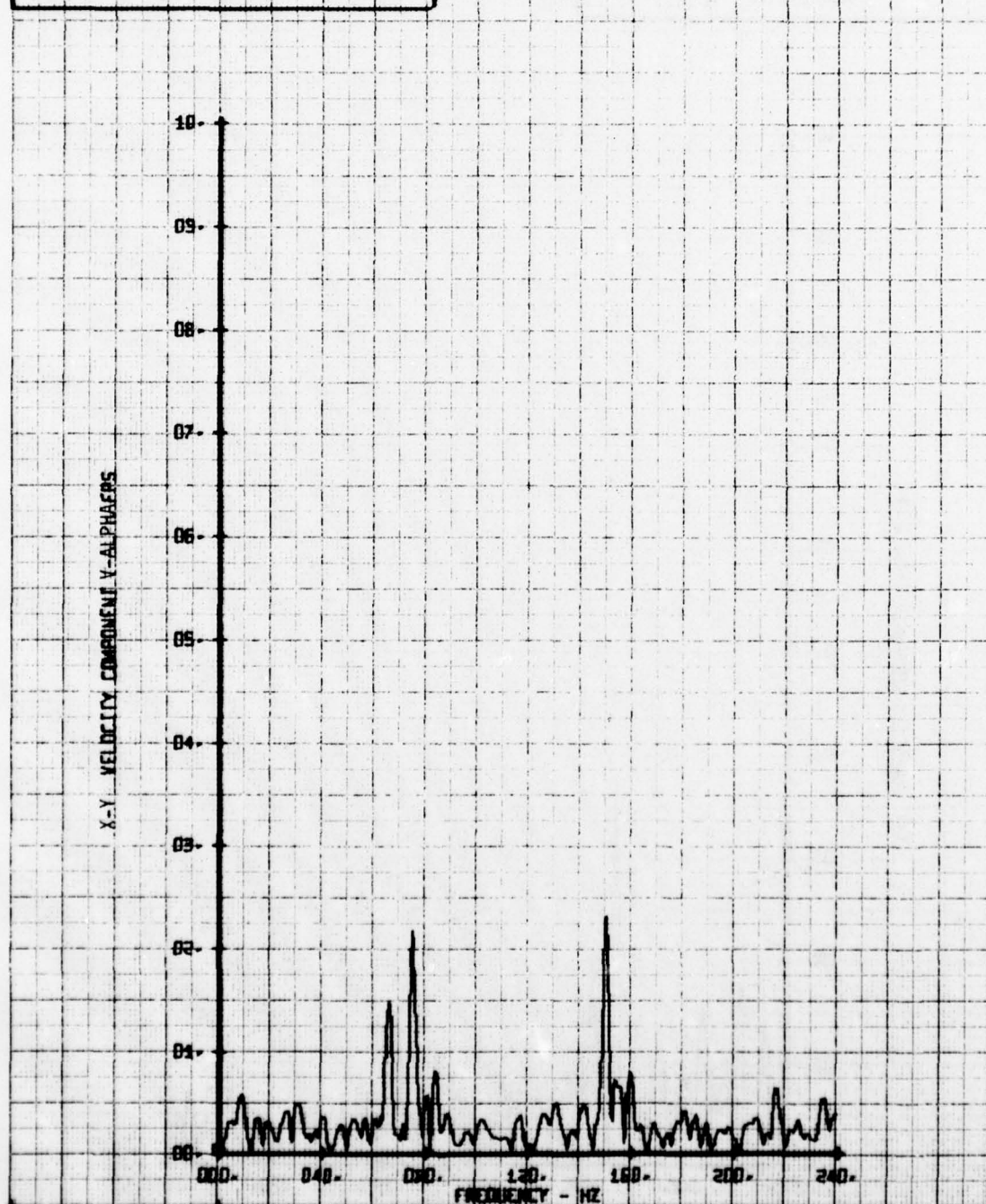
LEGEND
CH 66
PARAMETER
V-ALPHA

X-Y VELOCITY COMPONENT V-ALPHA EPS



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. EFFECT OF STAB.
RUN 121 TP 4

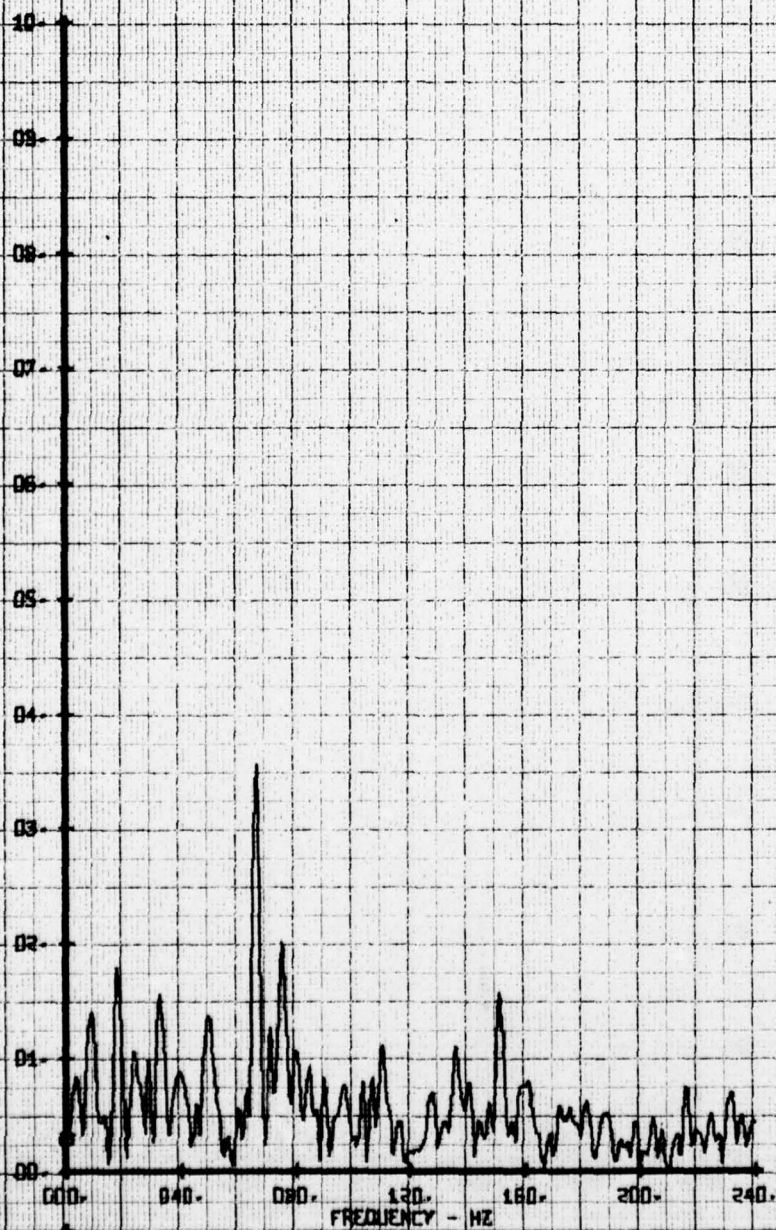
LEGEND
CH 66
PARAMETER
V-ALPHA



HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG: EFFECT OF STAB.
RUN 121 TP 5

LEGEND
CM PARAMETER
66 V-ALPHA

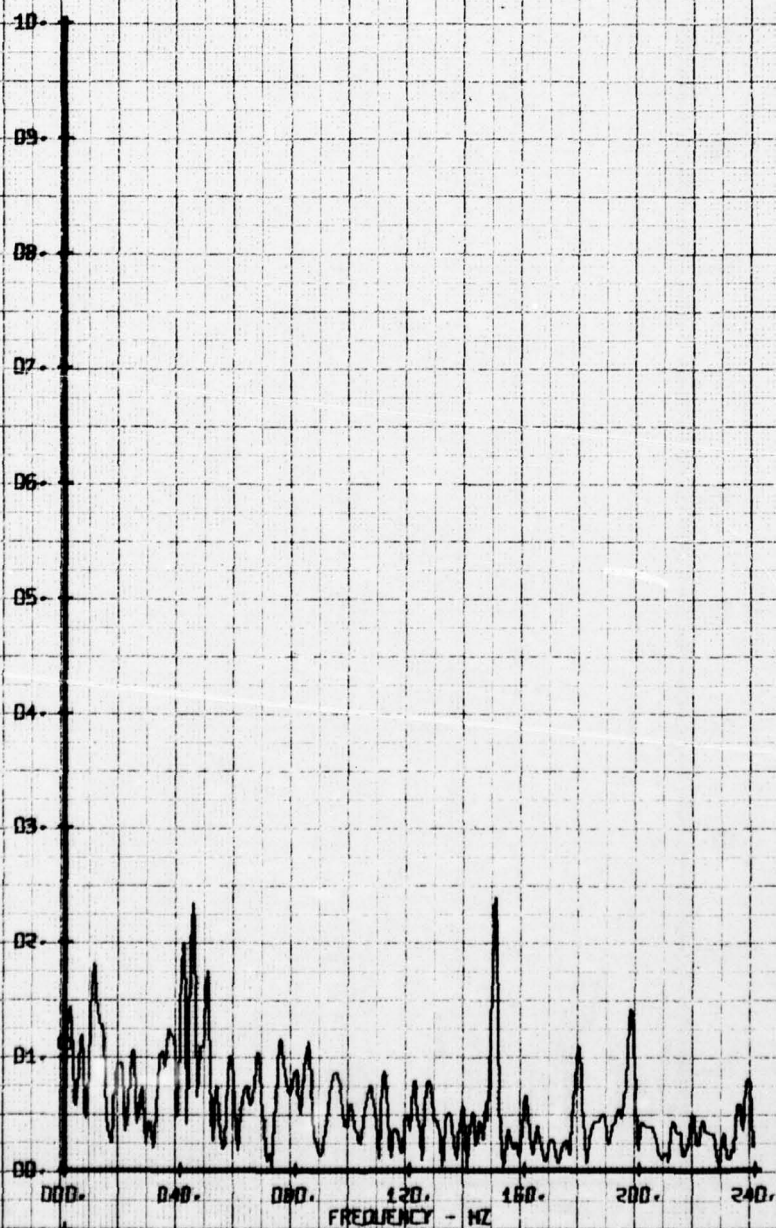
X-Y VELOCITY COMPONENT V-ALPHA FPS



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. EFFECT OF STAB.
RUN 121 TP 8

LEGEND
CH PARAMETER
66 V-ALPHA

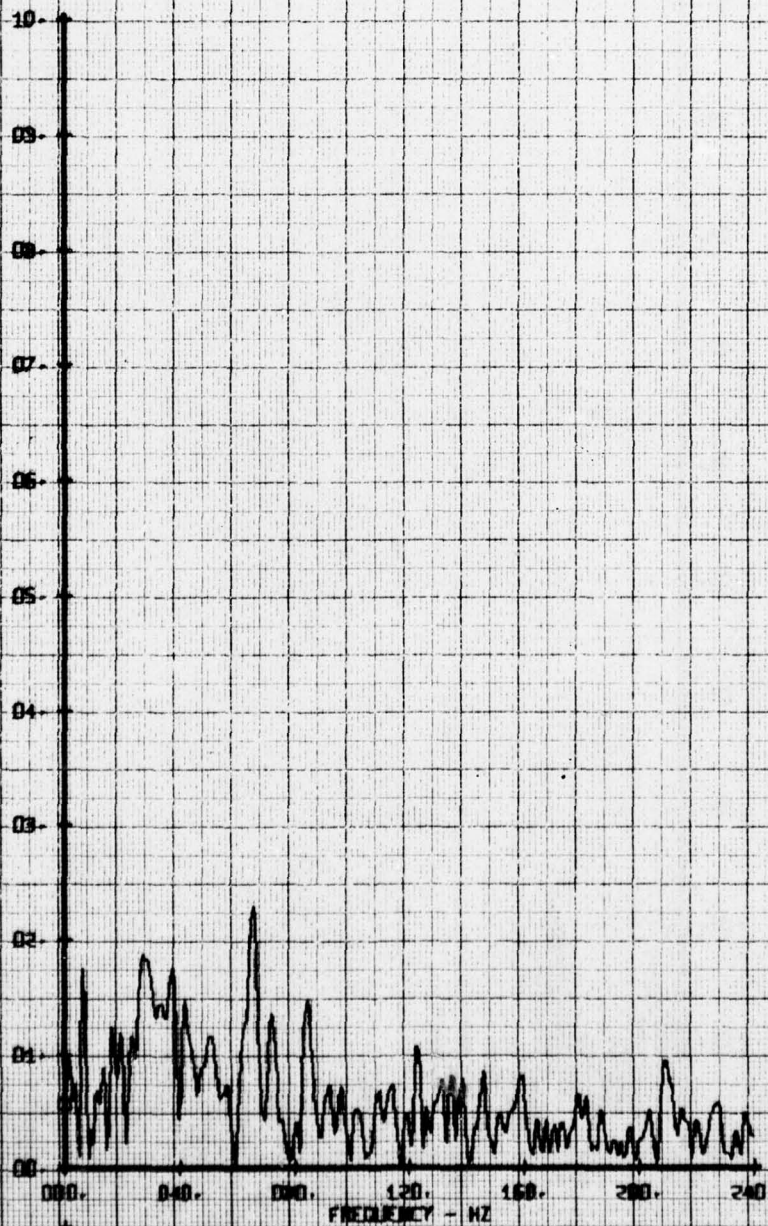
X-Y VELOCITY COMPONENT V-ALPHA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. EFFECT OF STAB.
RUN 121 TP 10

LEGEND
CH PARAMETER
66 V-ALPHA

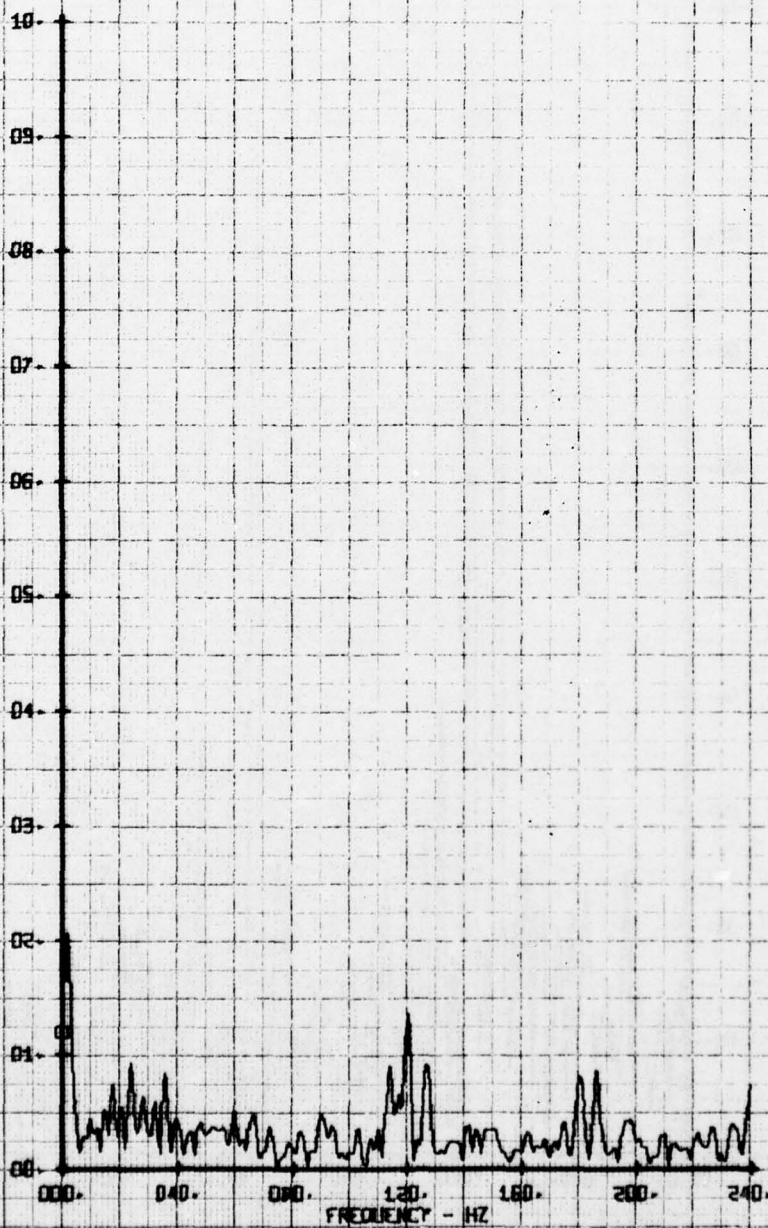
X-Y VELOCITY COMPONENT V-ALPHA FMS



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. EFFECT OF STAB.
RUN 121 TP 3

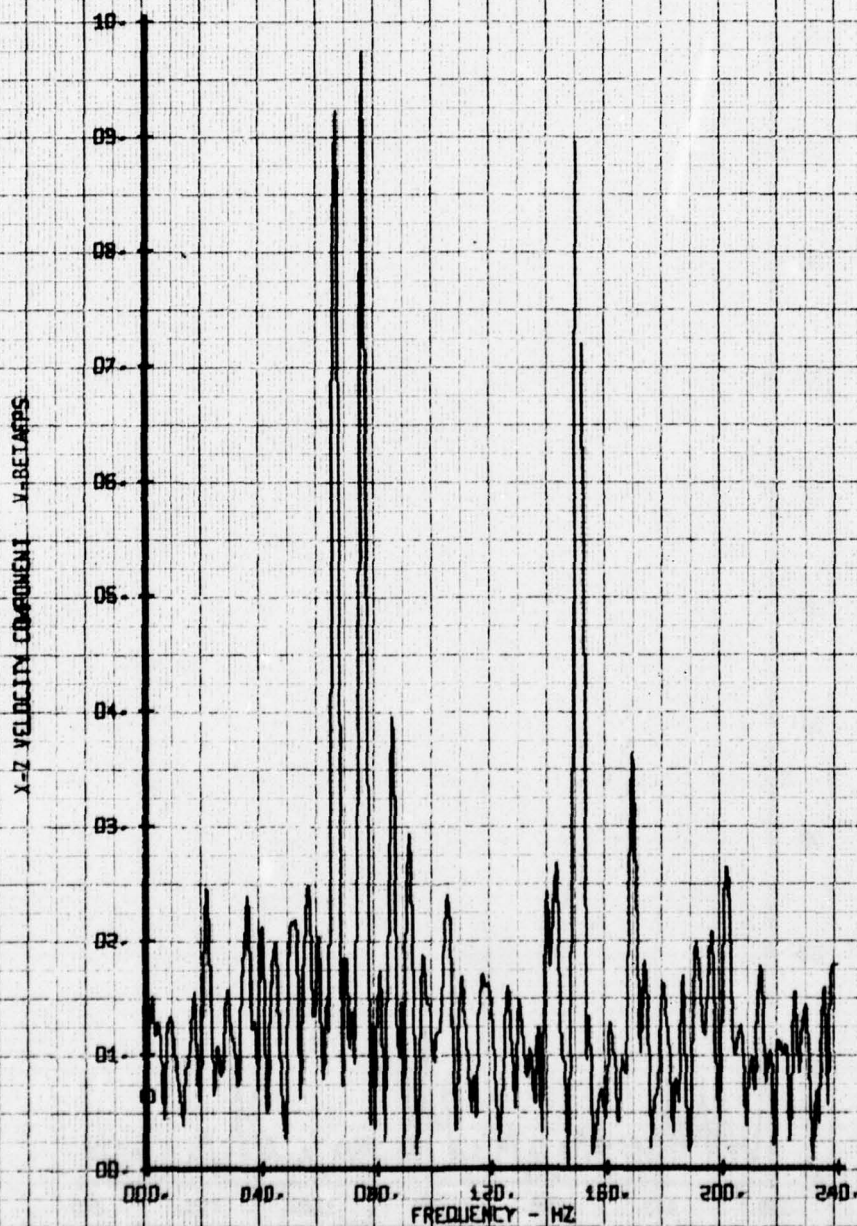
LEGEND
CH 65
PARAMETER
V-BETA

X-Z VELOCITY COMPONENT V-BETA FPS



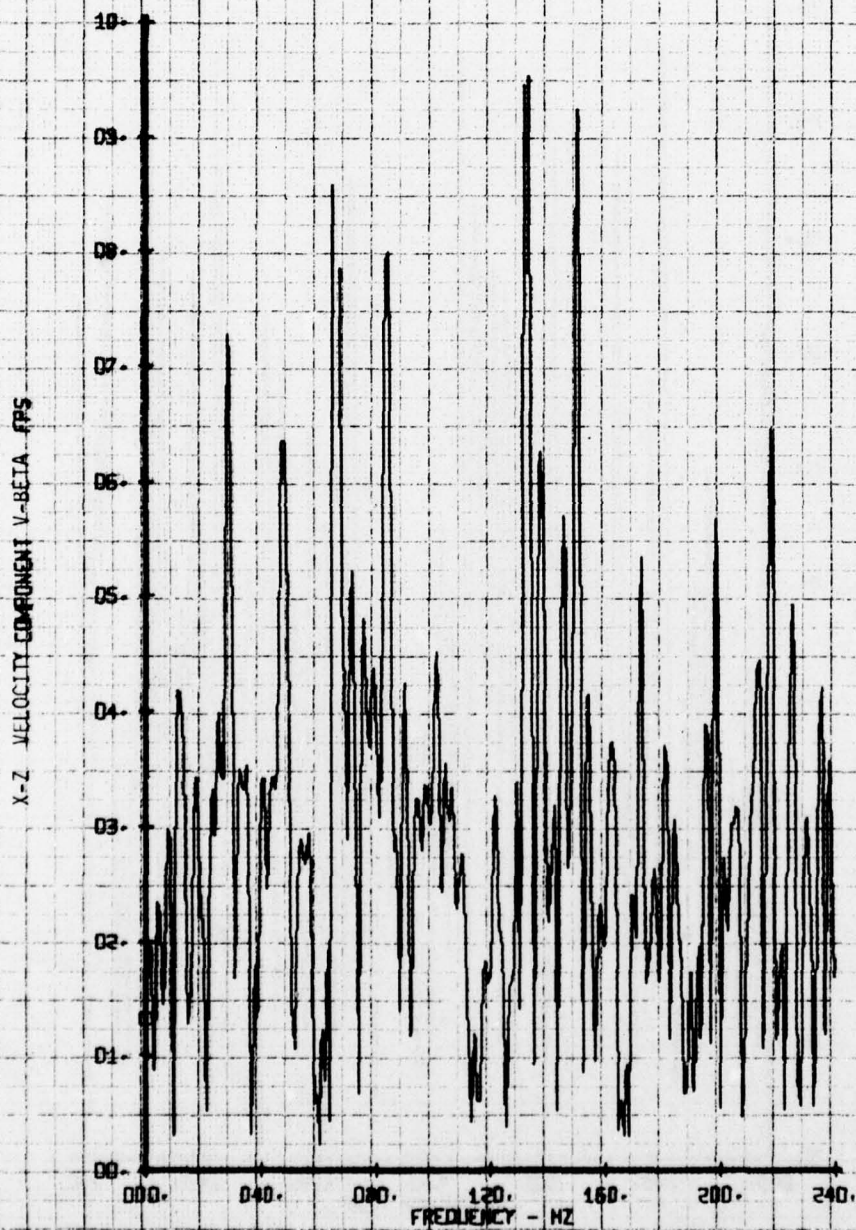
HOT FILM WIRE FREQUENCY ANALYSIS
BASE CONFIG- EFFECT OF STAB-
RUN 121 TP *

LEGEND
CH PARAMETER
65 V-BETA



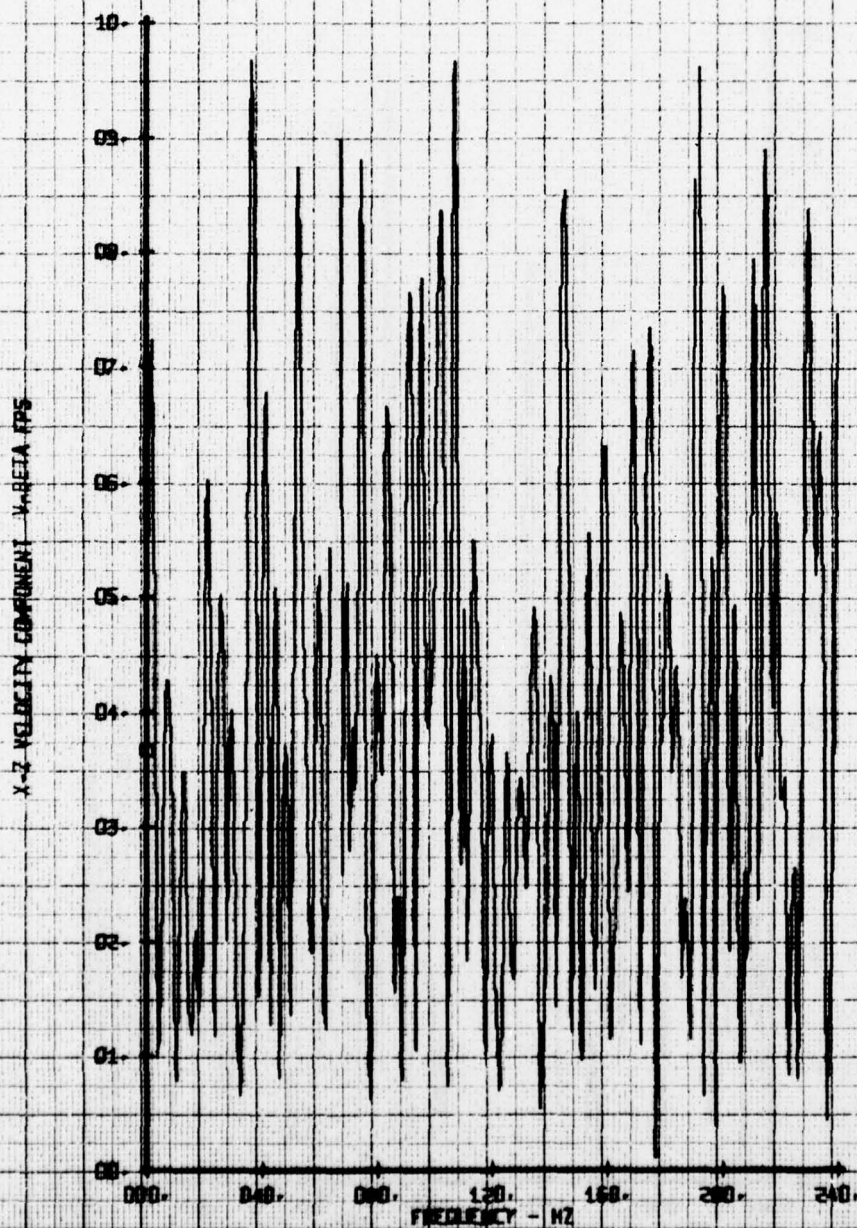
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. EFFECT OF STAB.
RUN 121 TP 6

LEGEND
CH 65
PARAMETER
V-BETA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. EFFECT OF STAB.
RUN 121 TP 8

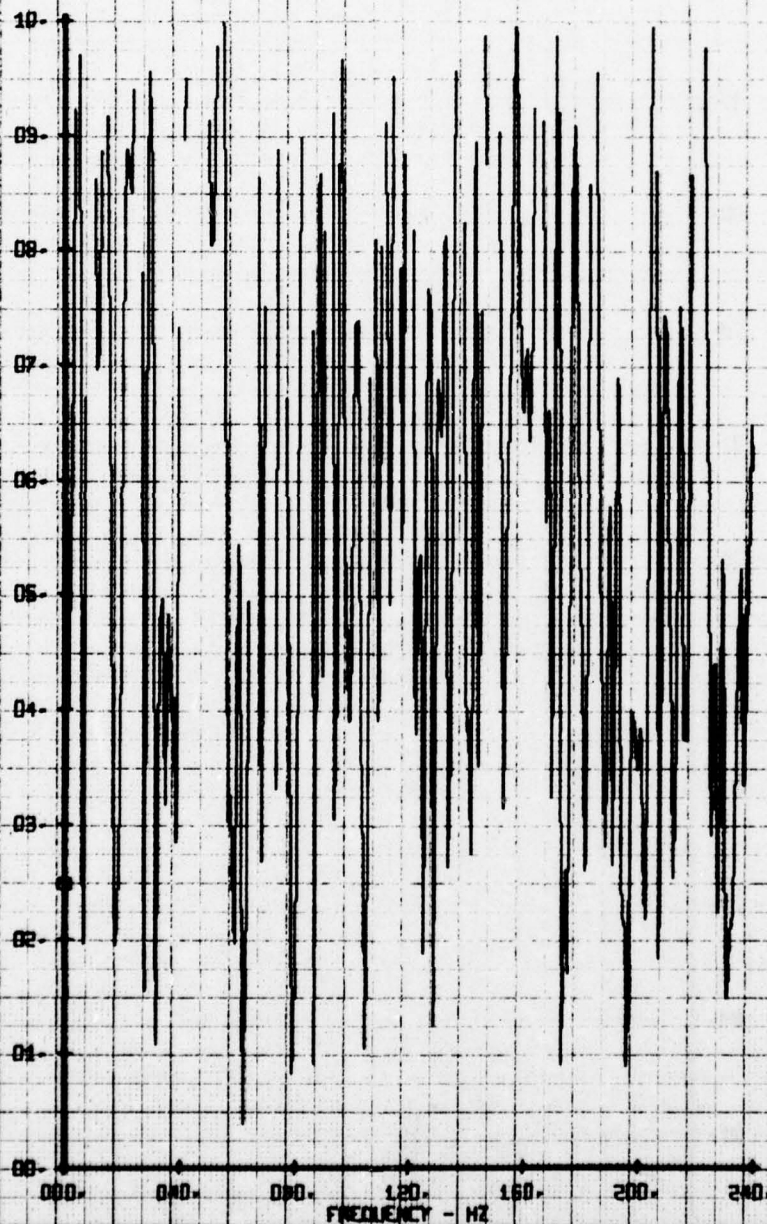
LEGEND
CH 65 PARAMETER
V-BETA



NOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. EFFECT OF STAB.
RUN 121 TP. 10

LEGEND
CH 65
PARAMETER
V-BETA

X-Z VELOCITY COMPONENT V-BETA FPS



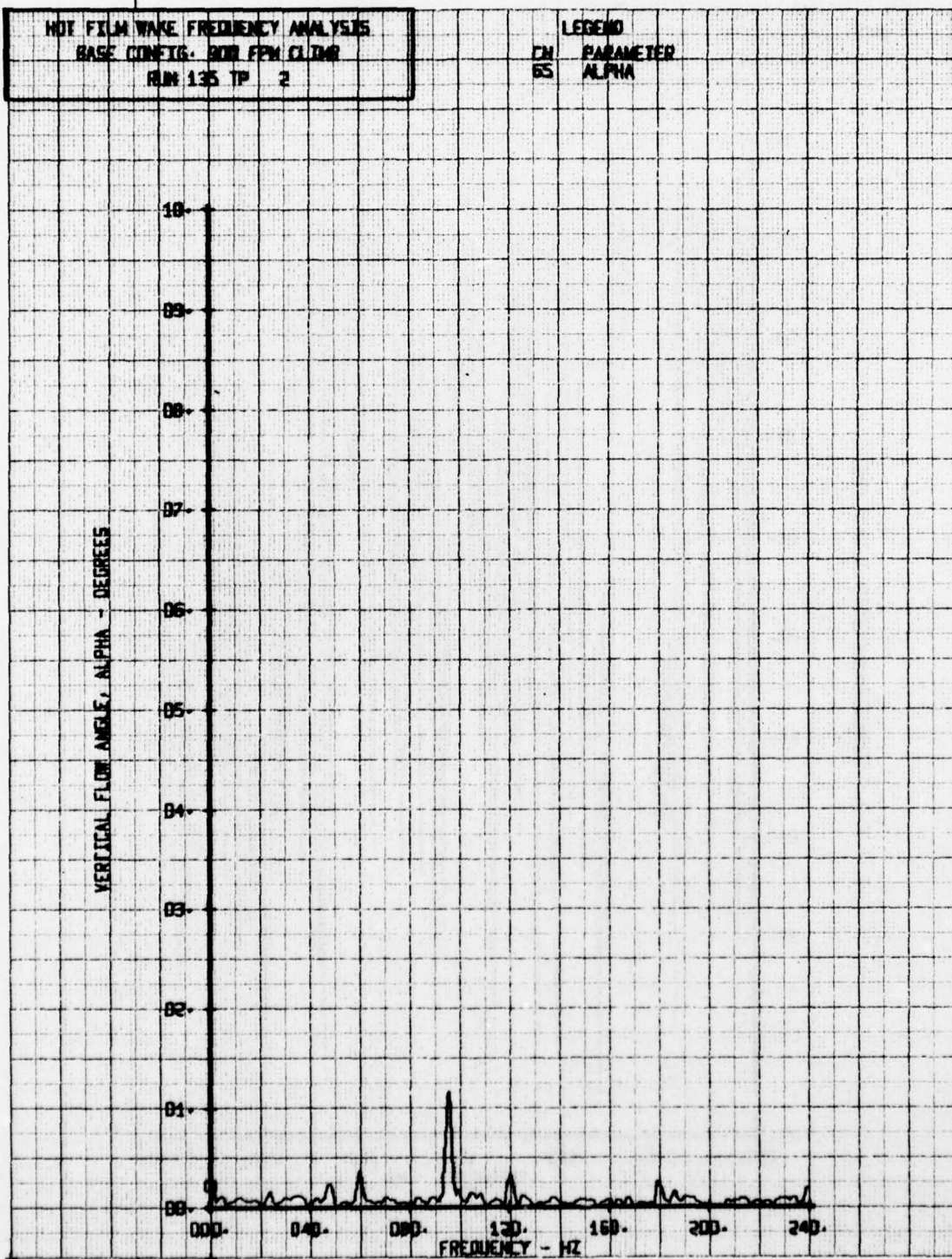
HOT FILM WAKE FREQUENCY ANALYSIS

BASE CONFIG. 900 FPM CLIMB

RUN 135 TP 2

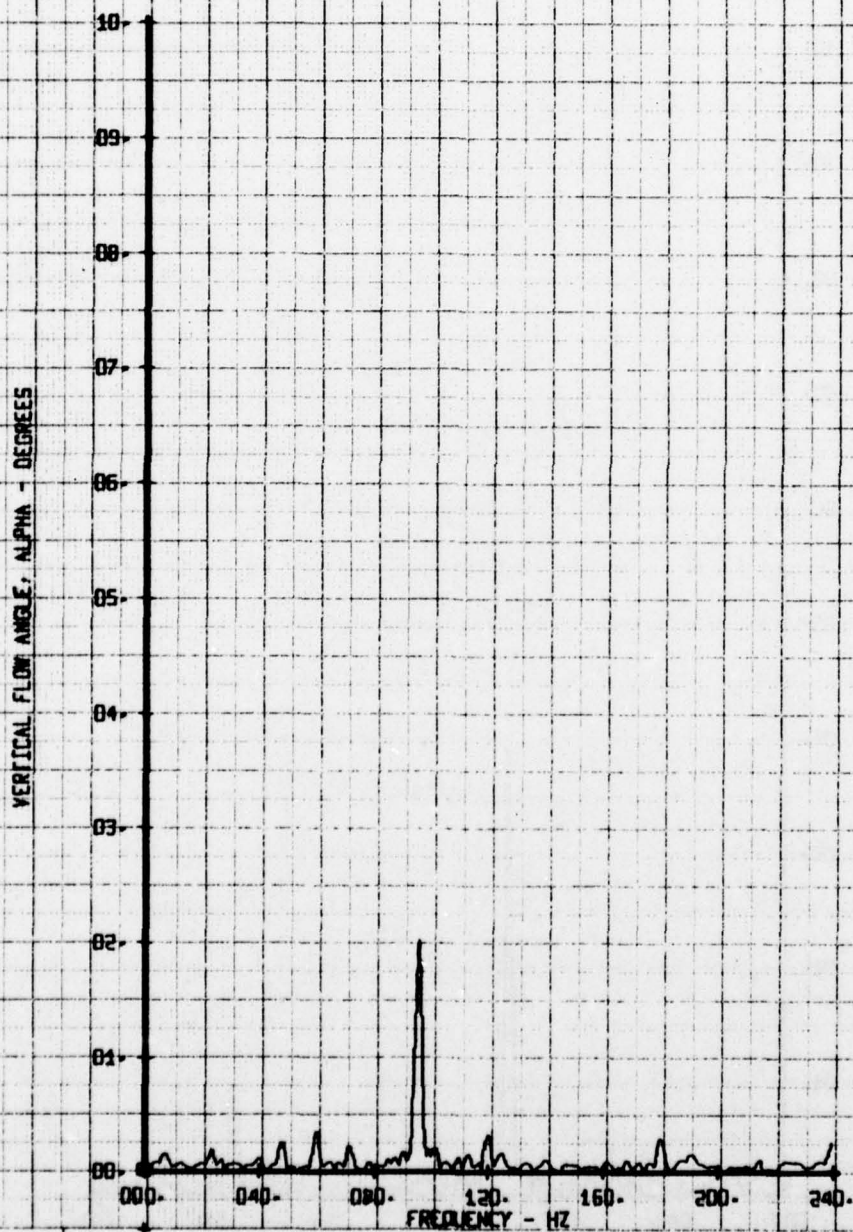
LEGEND

CH	PARAMETER
65	ALPHA



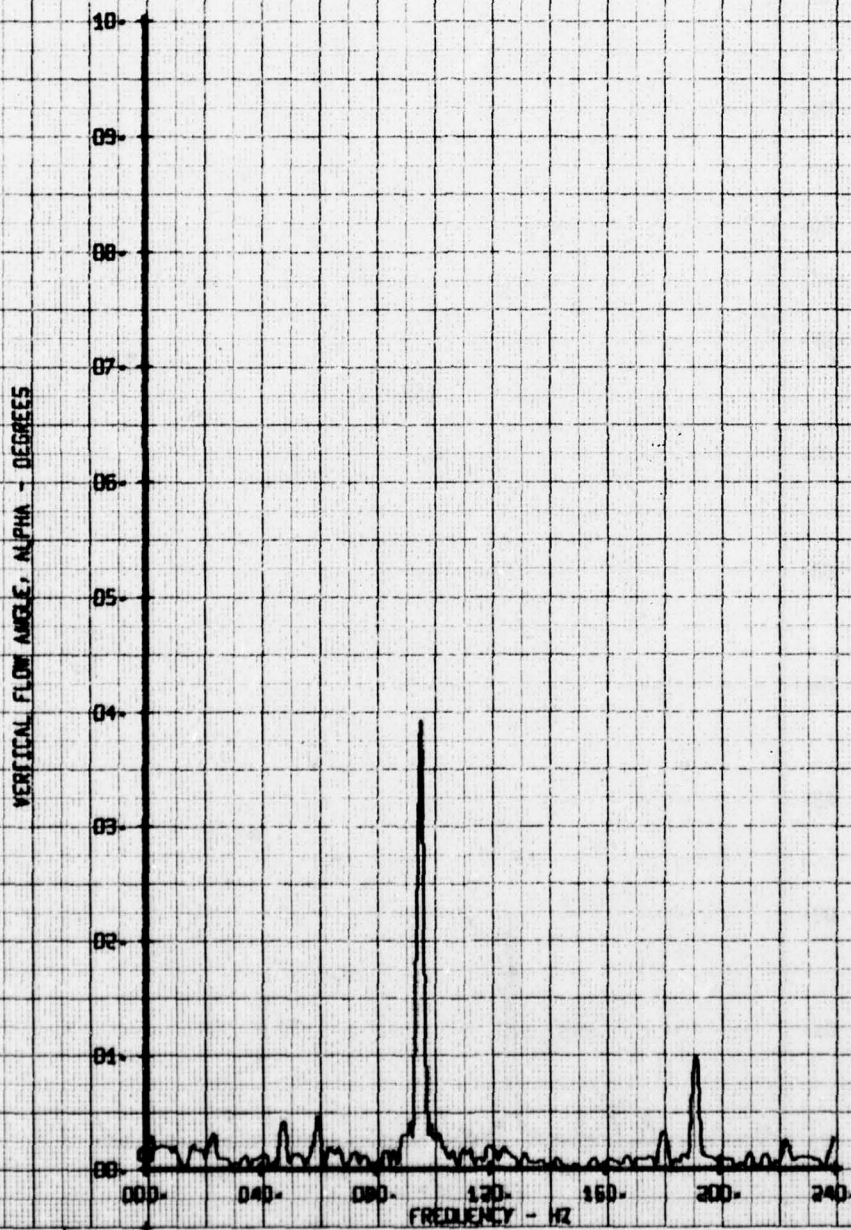
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CORRECTION: 900 FPM CLIMB
RUN 135 TP 4

LEGEND
CH 65
PARAMETER
ALPHA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG- 800 FPM CLIMB
RUN 135 TP 6

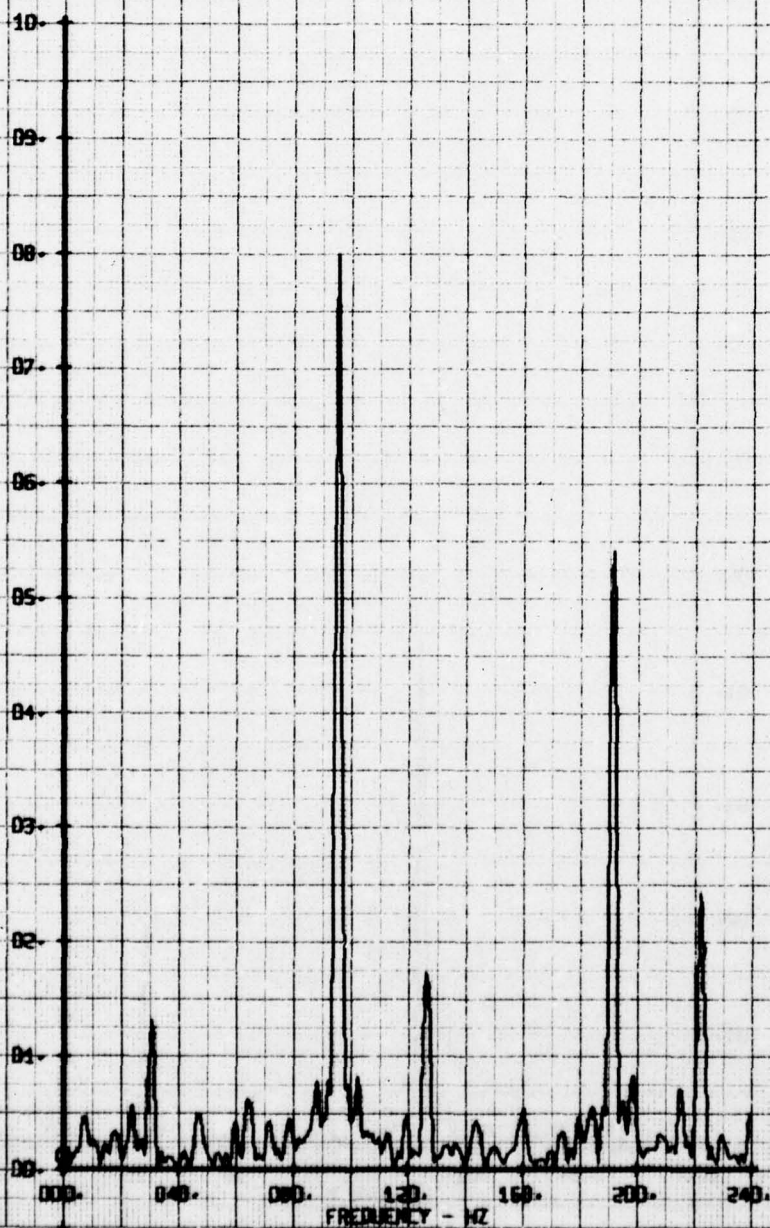
LEGEND
CH 65 PARAMETER
ALPHA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 900 FPM CLIMB
RUN 135 TP 8

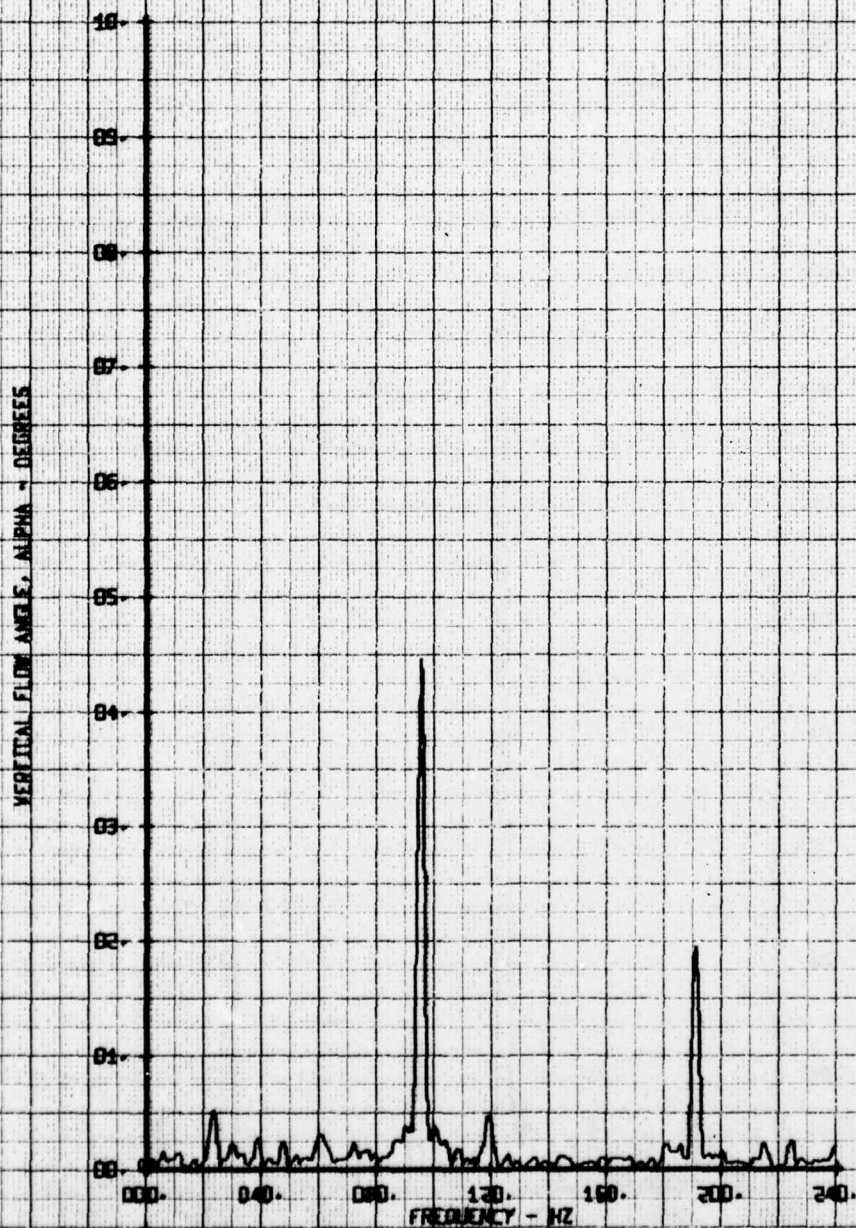
LEGEND
CH 65 PARAMETER
ALPHA

VERTICAL FLOW ANGLE, ALPHA - DEGREES



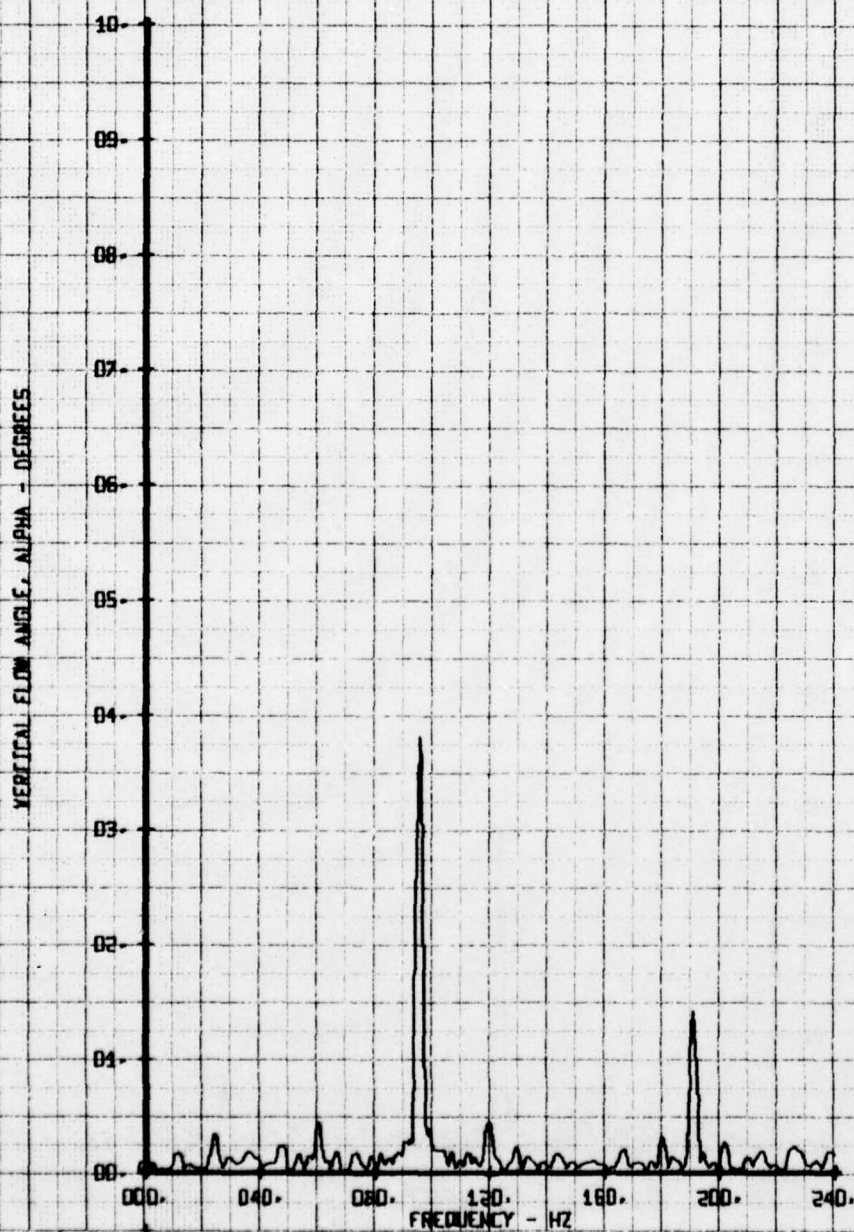
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONTS. 900 RPM CLIMB
RUN 135 TP 10

LEGEND
CH PARAMETER
65 ALPHA



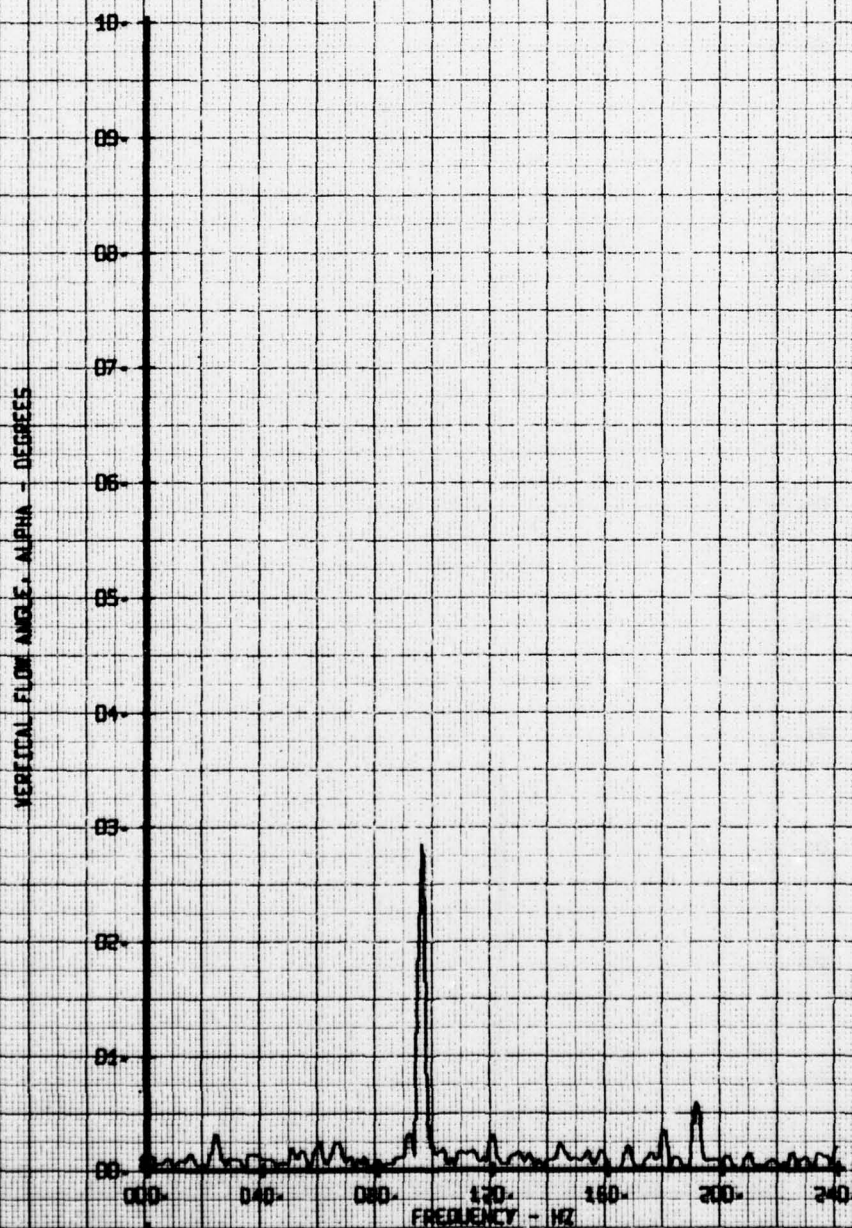
HOT FILM WAVE FREQUENCY ANALYSIS
BASE CONFIG. 900 RPM CLIMB
RUN 135 TP 12

LEGEND
CH 65
PARAMETER ALPHA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 900 RPM CLIMB
RUN 135 TP 14

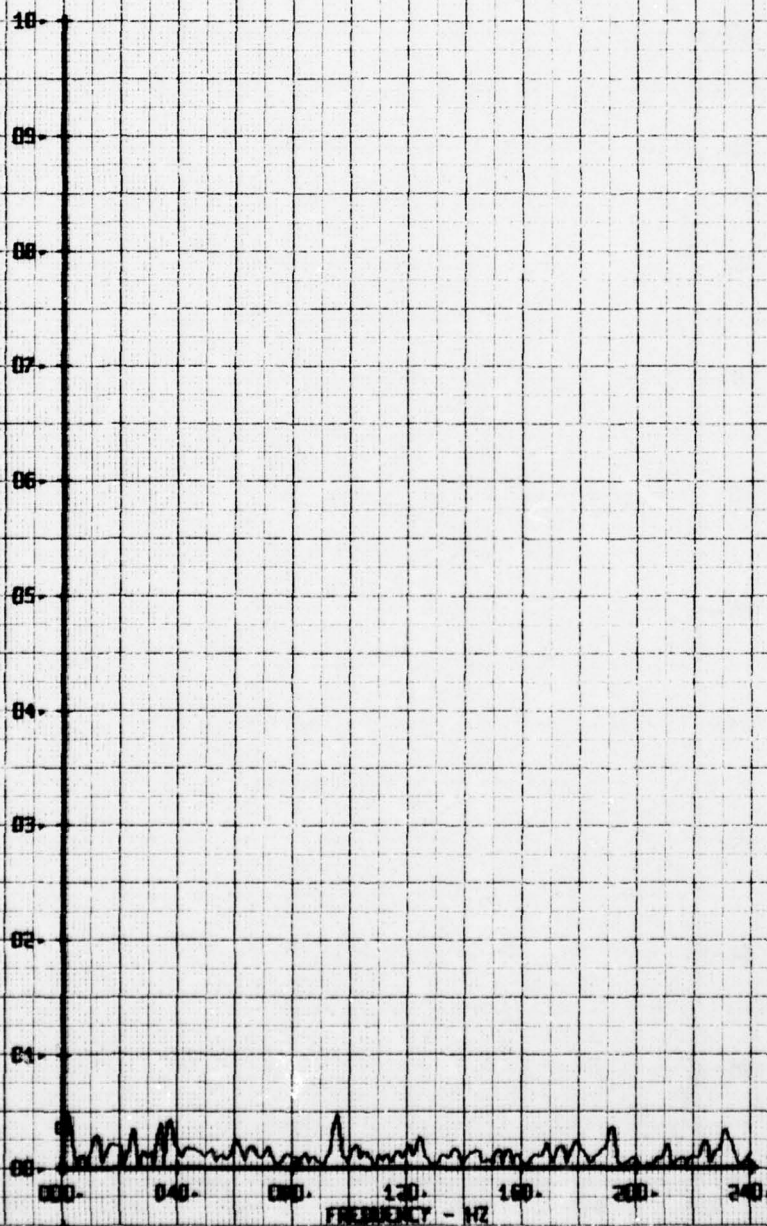
LEGEND
CH PARAMETER
65 ALPHA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 900 RPM CLIMB
RUN 135 TP 2

LEGEND
CH 66
PARAMETER
BETA

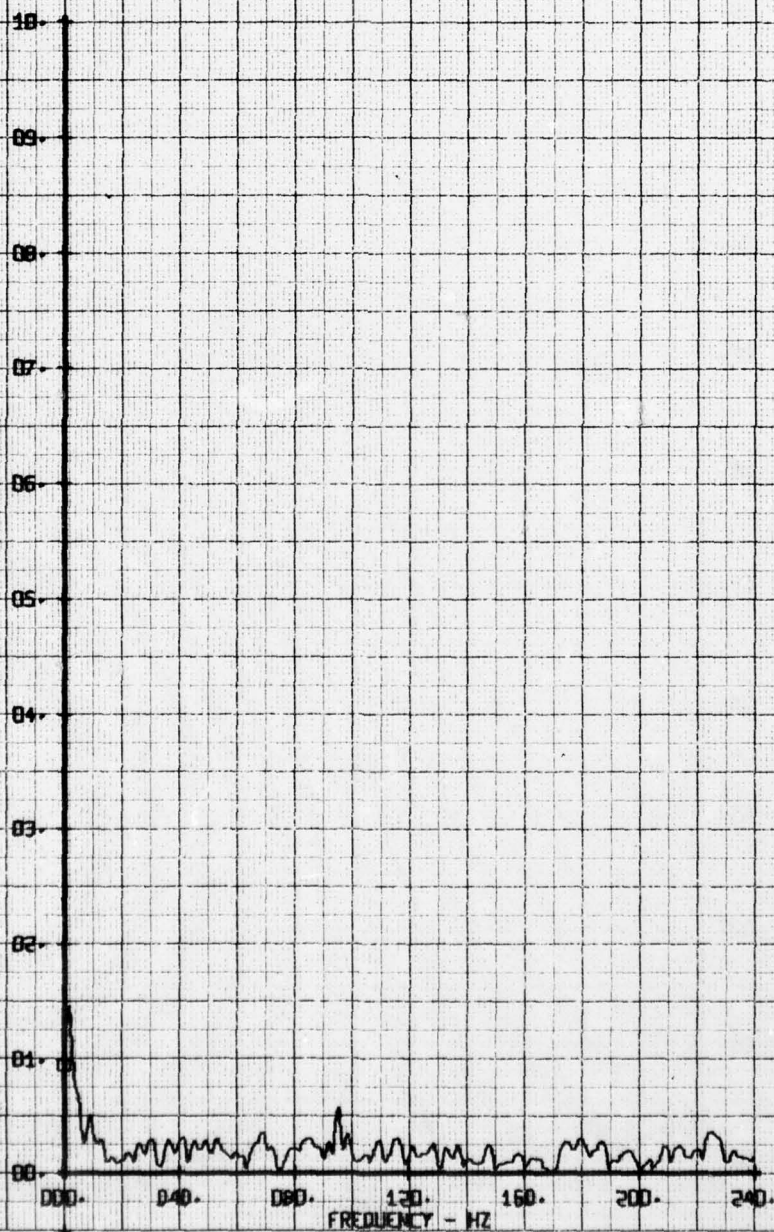
LATERAL FLOW ANGLE, BETA - DEGREES



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONTIG. 900 FPM CLIMB
RUN 135 TP 1

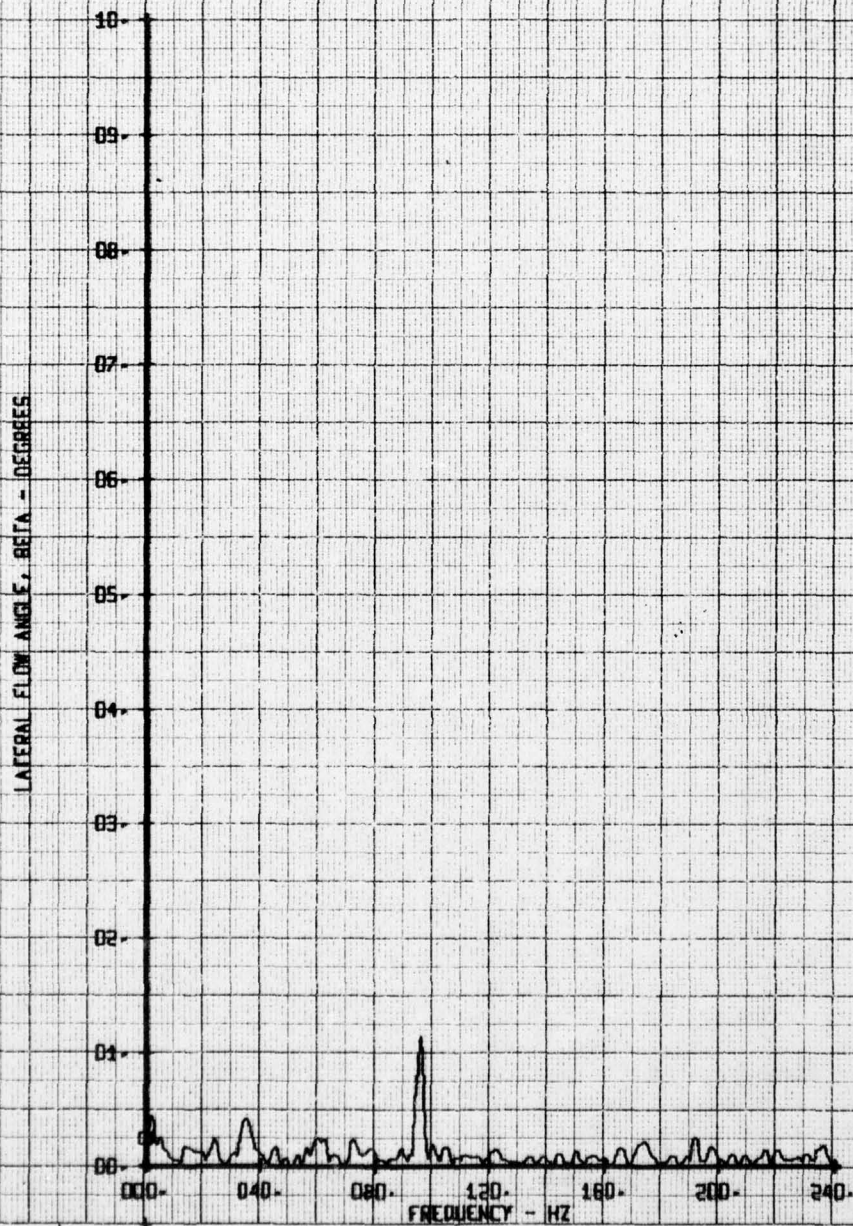
LEGEND
CH 66
PARAMETER
BETA

LATERAL FLOW ANGLE, BETA - DEGREES



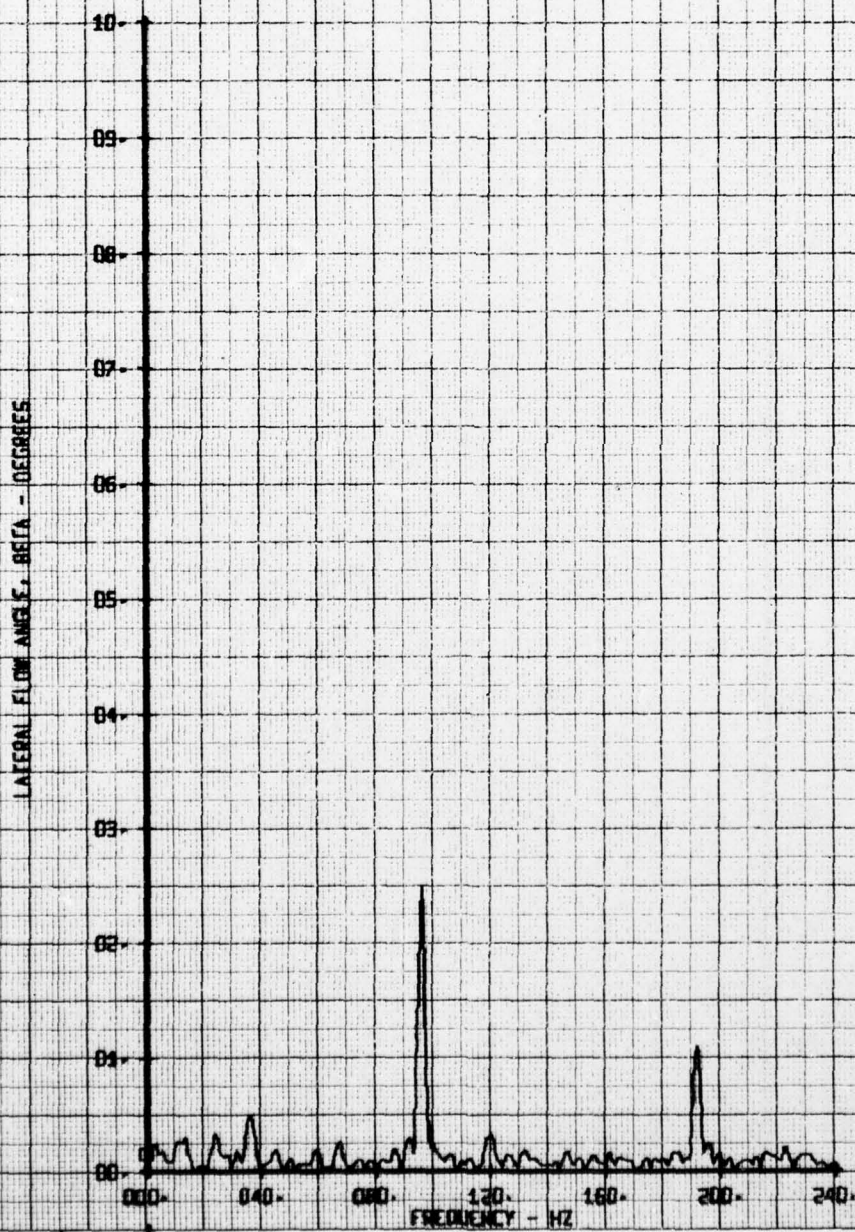
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 900 RPM CLIMB
RUN 135 TP 6

LEGEND
CH 66 PARAMETER
BETA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 900 RPM CLIMB
RUN 135 TP 8

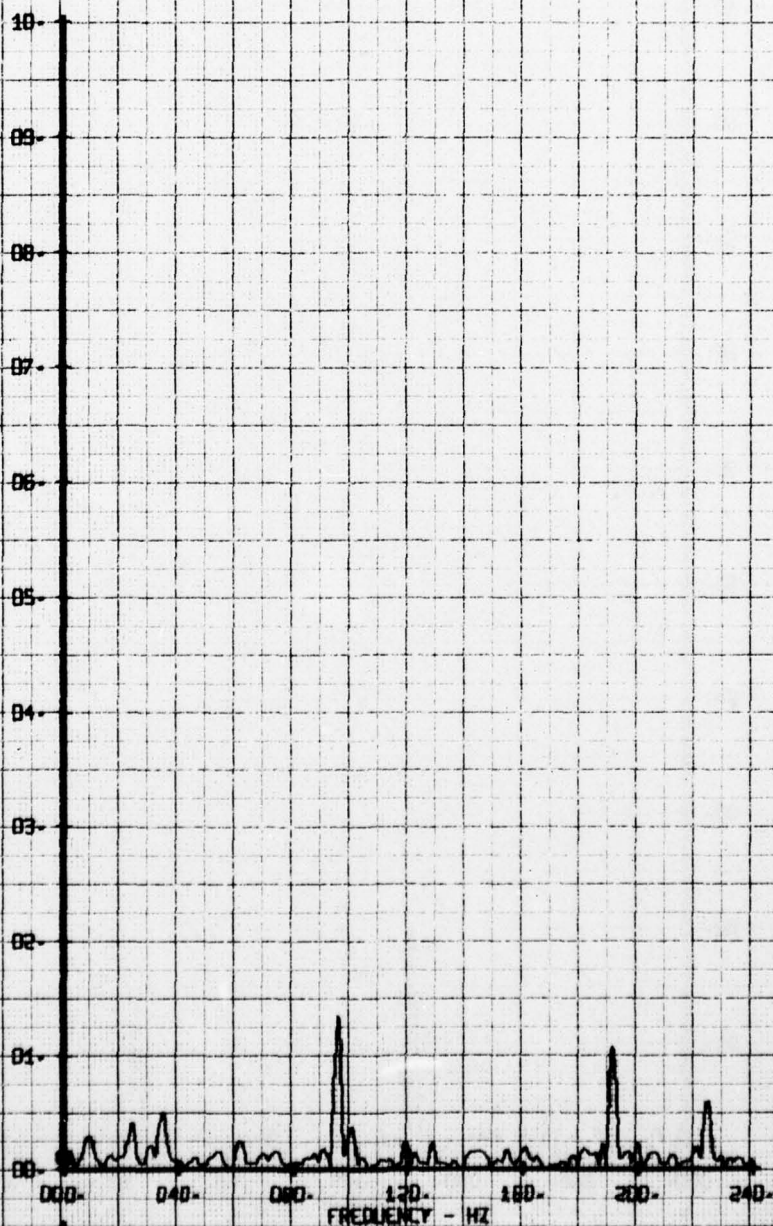
LEGEND
CH. 66
PARAMETER
BETA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 900 RPM CLIMB
RUN 135 TP 1D

LEGEND
CH 66
PARAMETER
BETA

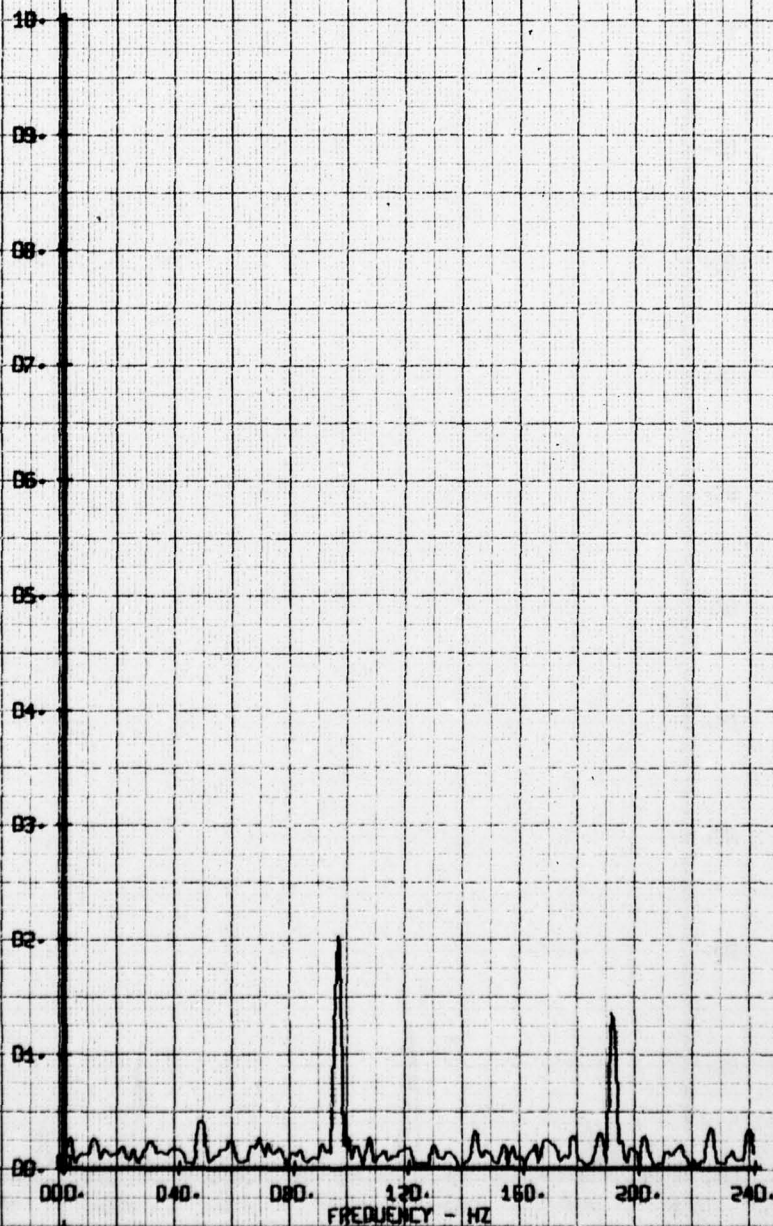
LATERAL FLOW ANGLE, BETA - DEGREES



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 900 RPM CLIMB
RUN 135 TP 12

LEGEND
CH PARAMETER
GG BETA

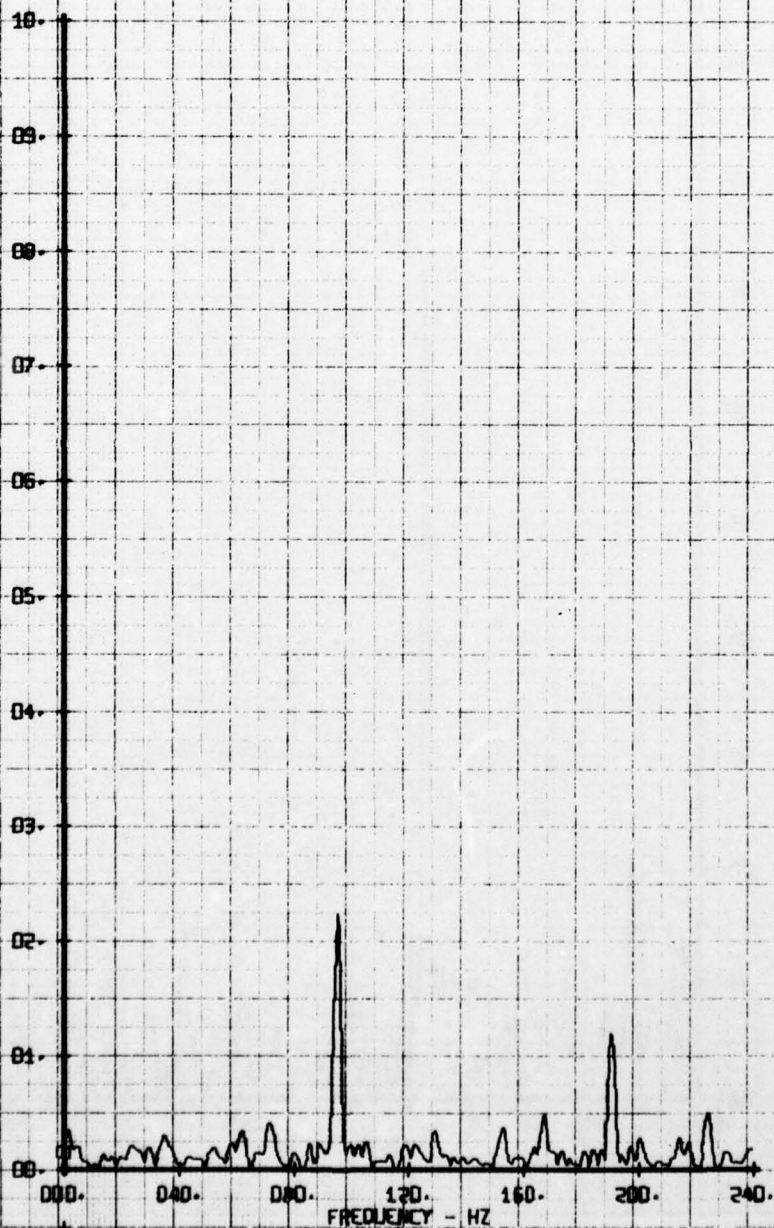
LATERAL FLOW ANGLE, BETA - DEGREES



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 900 FPM CLIMB
RUN 135 TP 14

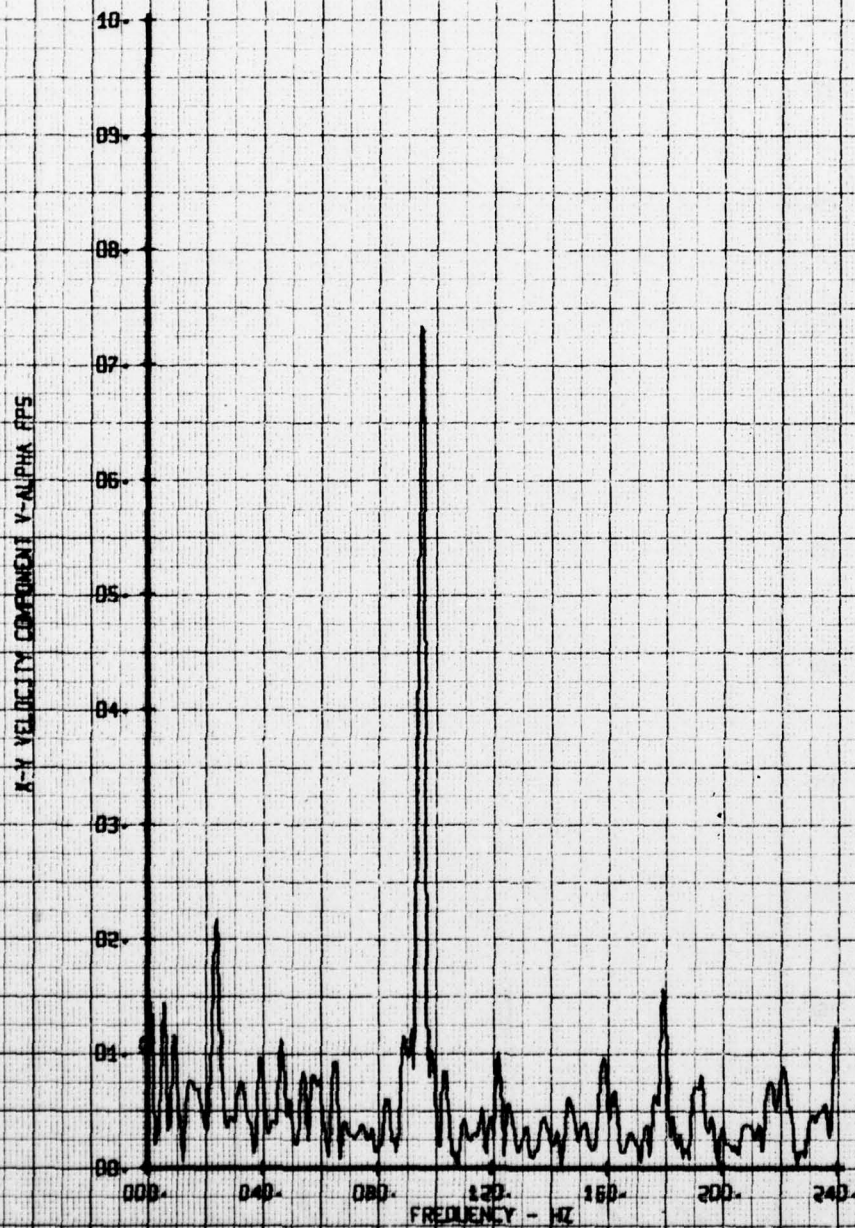
LEGEND
CH 66
PARAMETER
BETA

LATERAL FLOW ANGLE, BETA - DEGREES



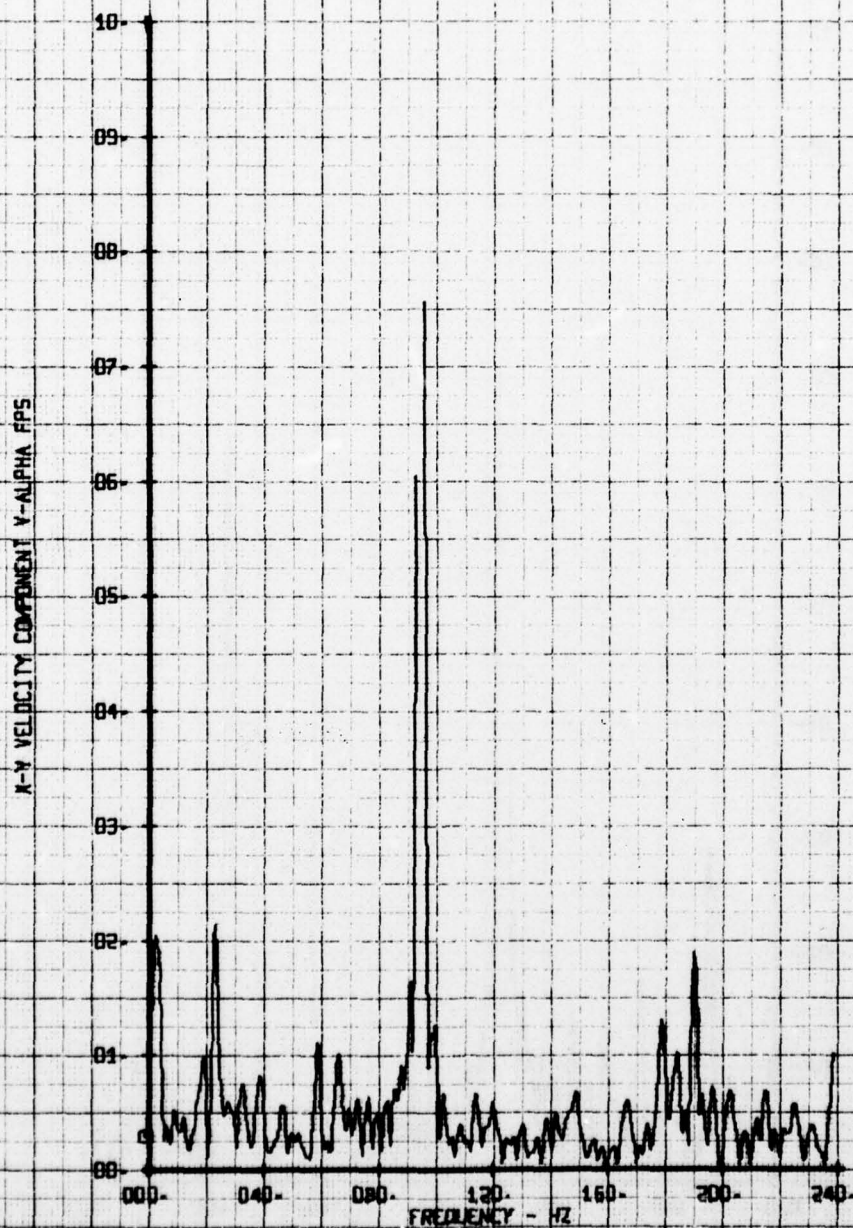
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 900 FPM CLIMB
RUN 135 TP 2

LEGEND
CH 65 PARAMETER
V-ALPHA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG: 800 FPM CLIMB
RUN 135 TP 4

LEGEND
CH. 65
PARAMETER
V-ALPHA



HOT FILM WAKE FREQUENCY ANALYSIS

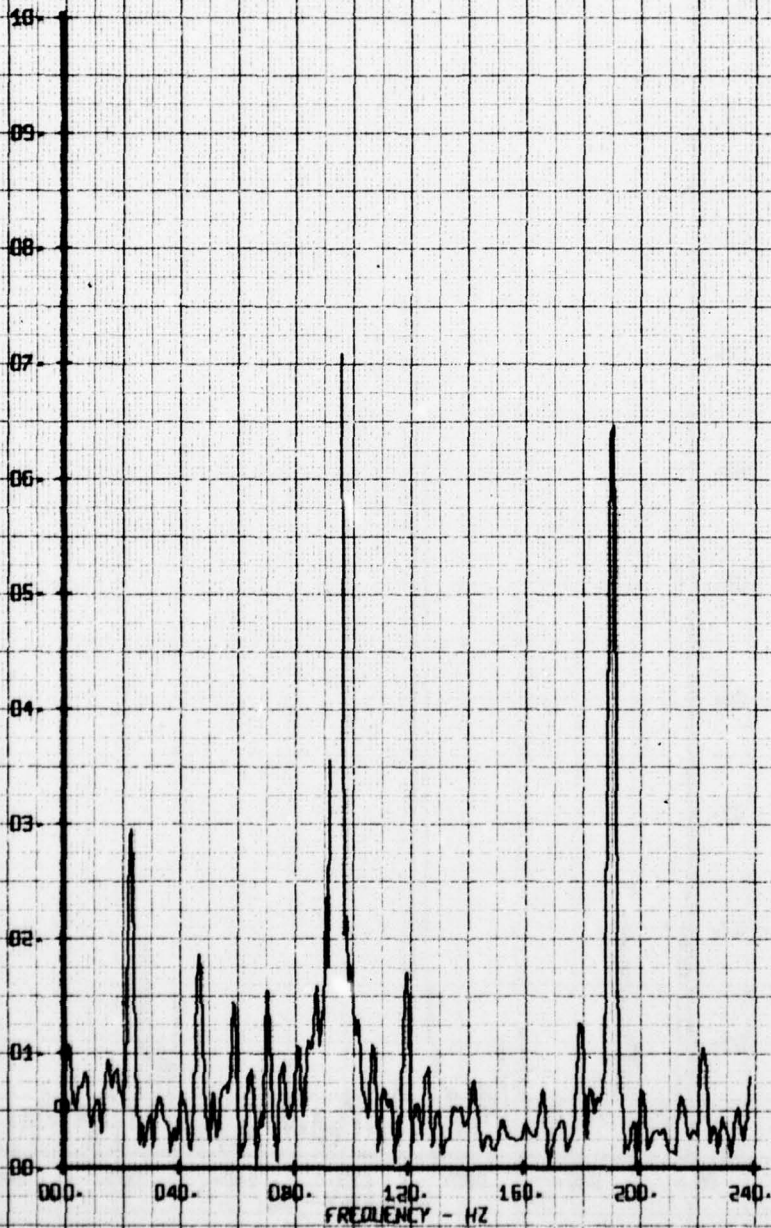
BASE CONFIG: 800 FPM CLIMB

RUN 135 TP 6

LEGEND

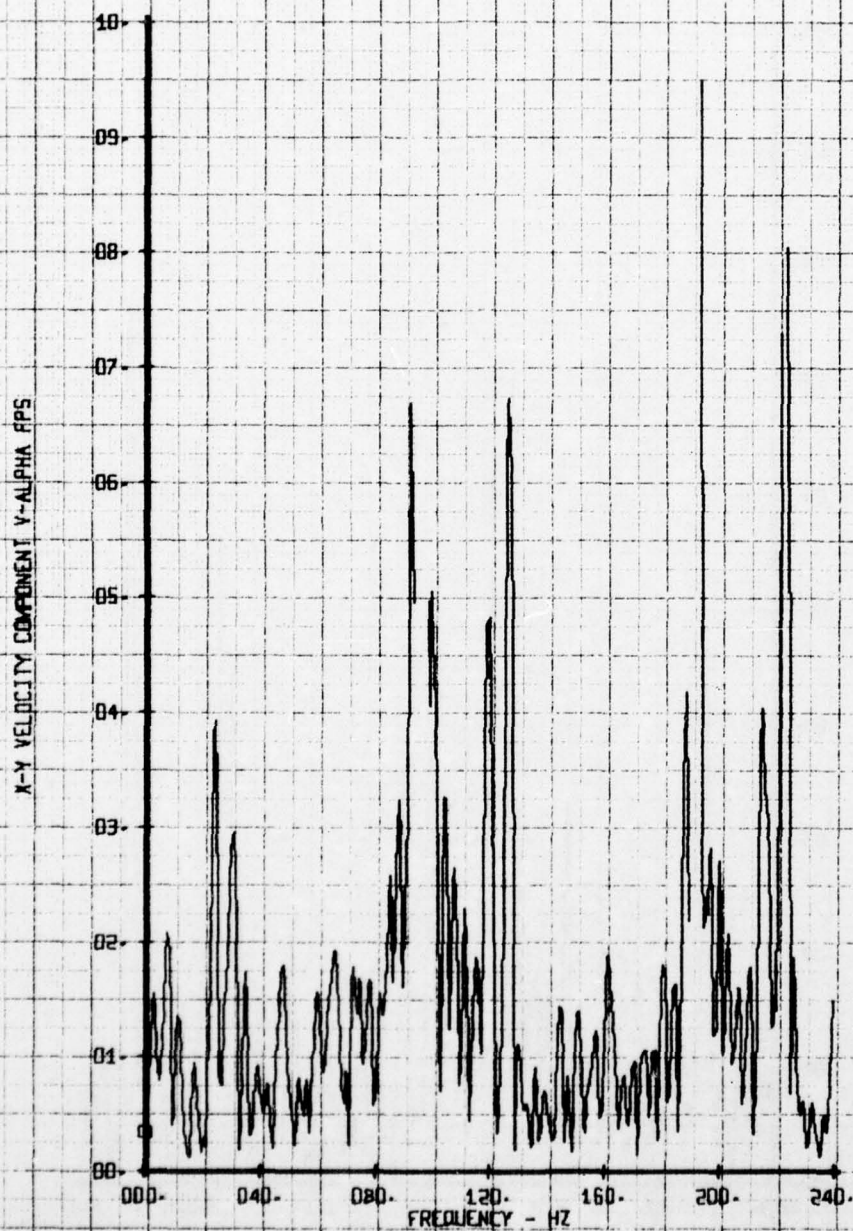
CH	PARAMETER
65	V-ALPHA

X-Y VELOCITY COMPONENT V-ALPHA FPS



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 900 FPM CLIMB
RUN 135 TP 8

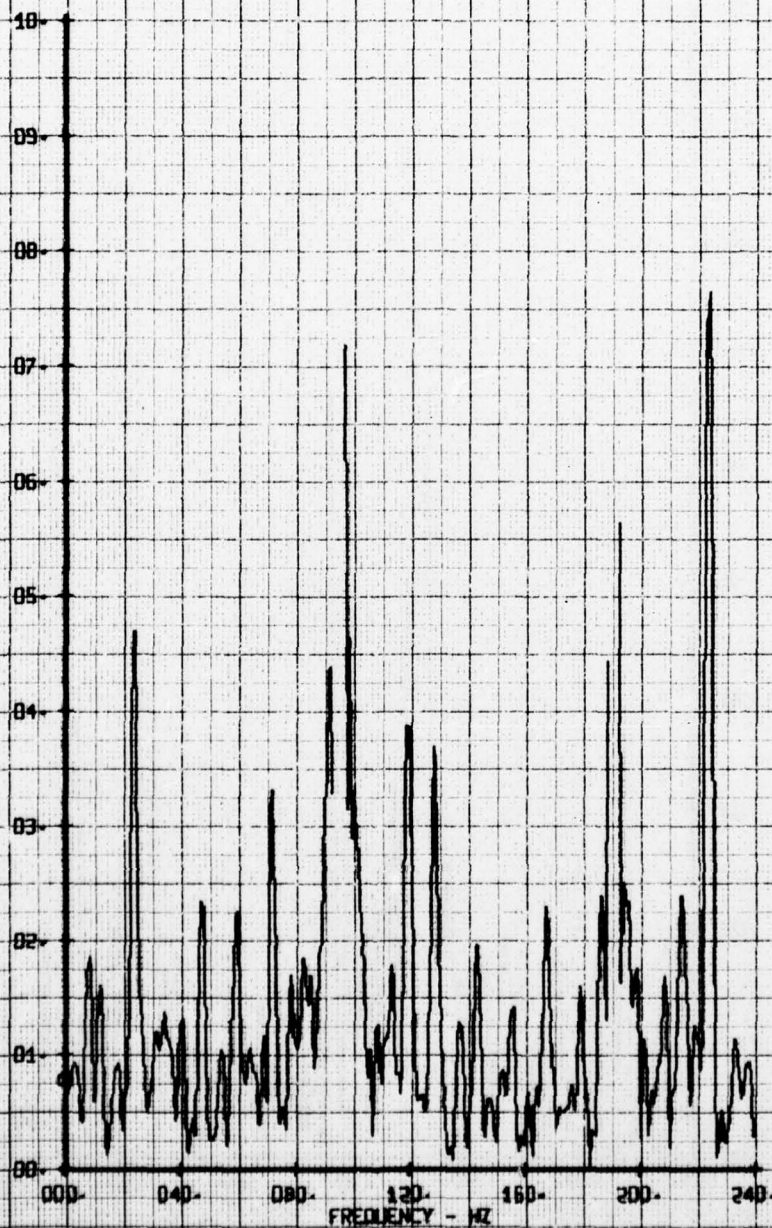
LEGEND
CH 65
PARAMETER
V-ALPHA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 900 FPM CLIMB
RUN 135 TP 10

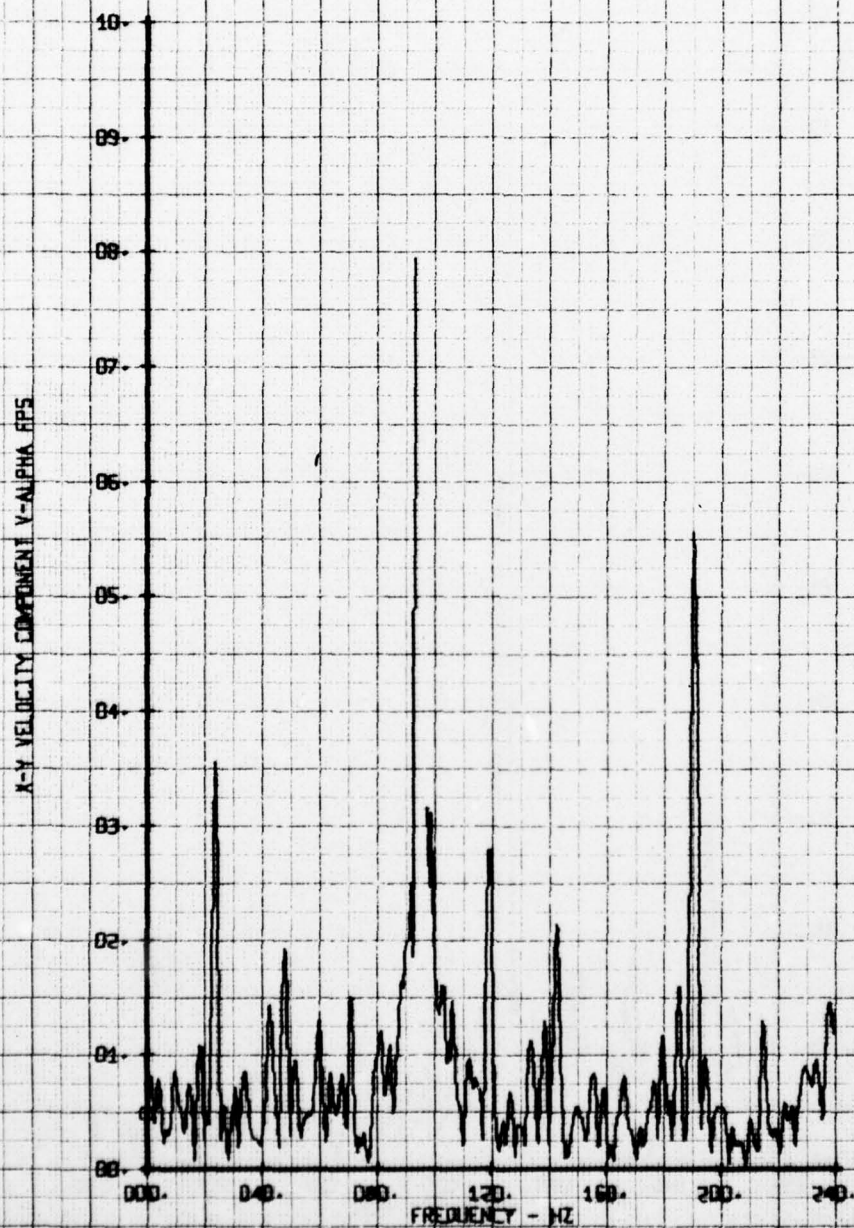
LEGEND
CH 65
PARAMETER
V-ALPHA

A-Y VELOCITY COMPONENT V-ALPHA FPS



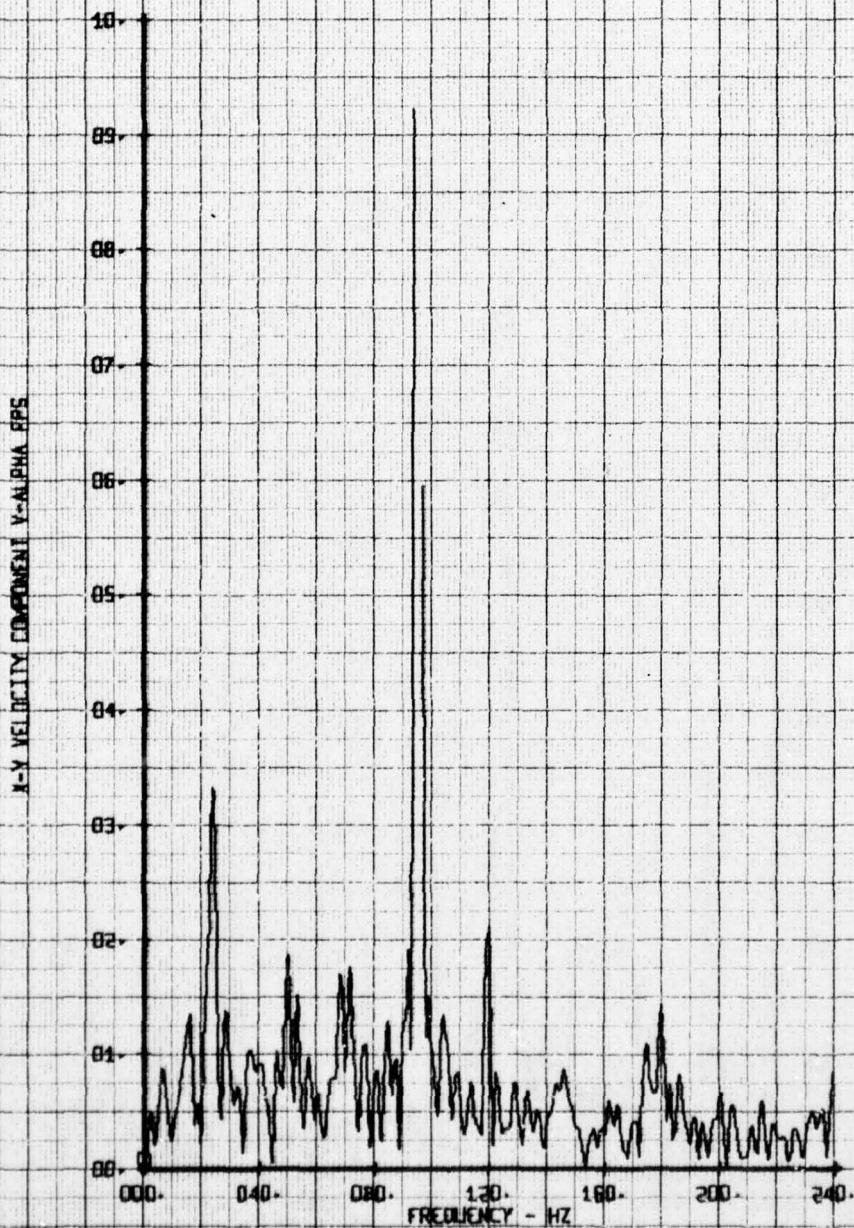
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BASE CONFIG. 900 FPM CLIMB
RUN 135 TP 12

LEGEND
CH 65
PARAMETER
V-ALPHA



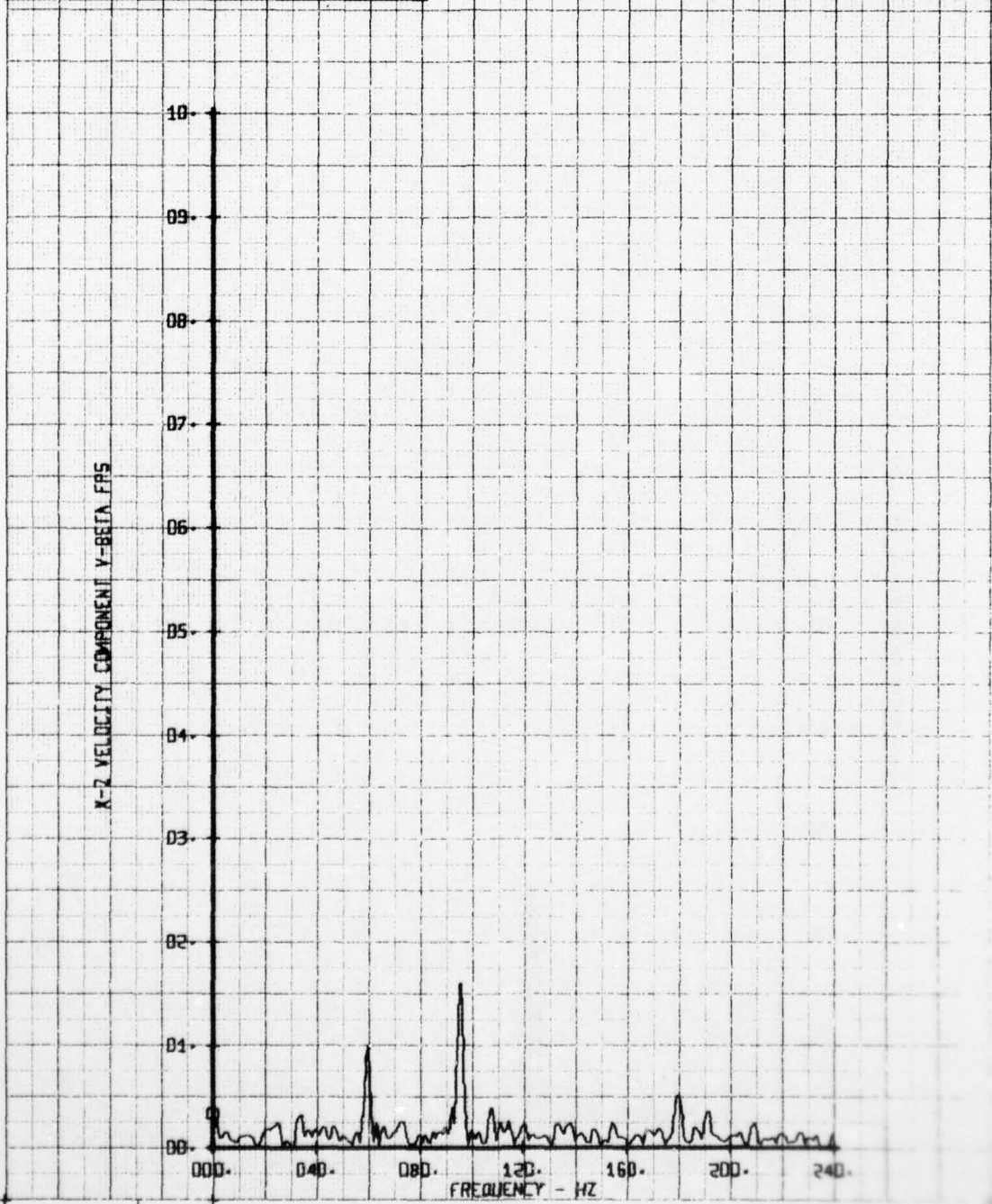
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 900 RPM CLIMB
RUN 135 YP 14

LEGEND
CH PARAMETER
65 V-ALPHA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 900 FPM CLIMB
RUN 135 TP 2

LEGEND
CH 66
PARAMETER
V-BETA



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INTERACTIONAL AERODYNAMICS OF THE SINGLE ROTOR HELICOPTER CONF--ETC(U)

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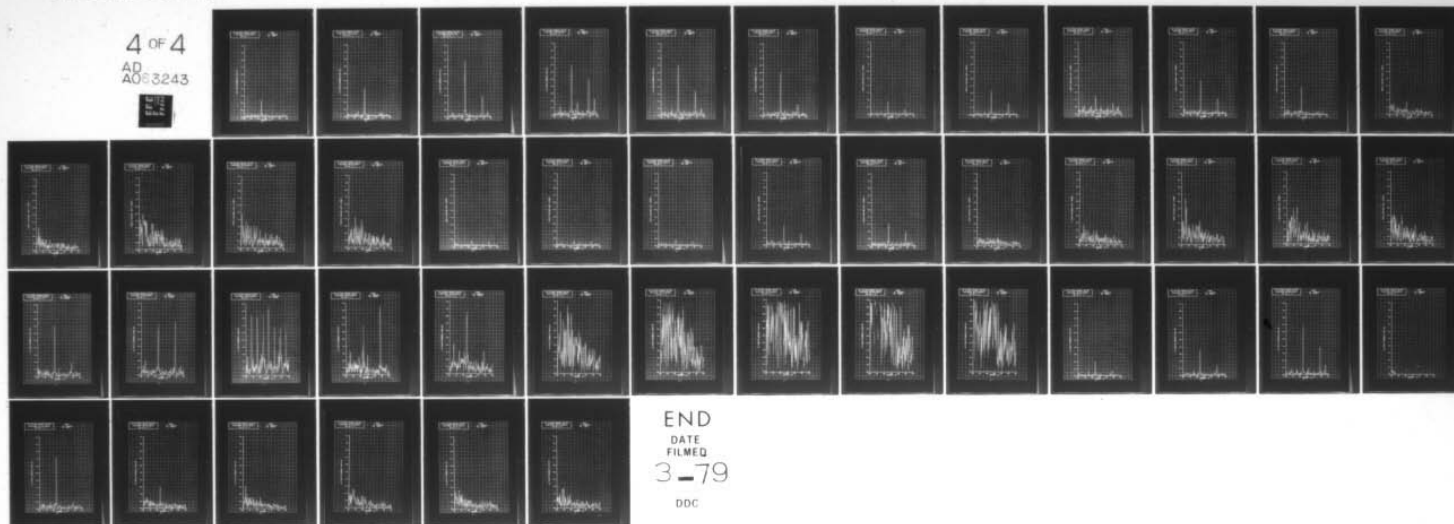
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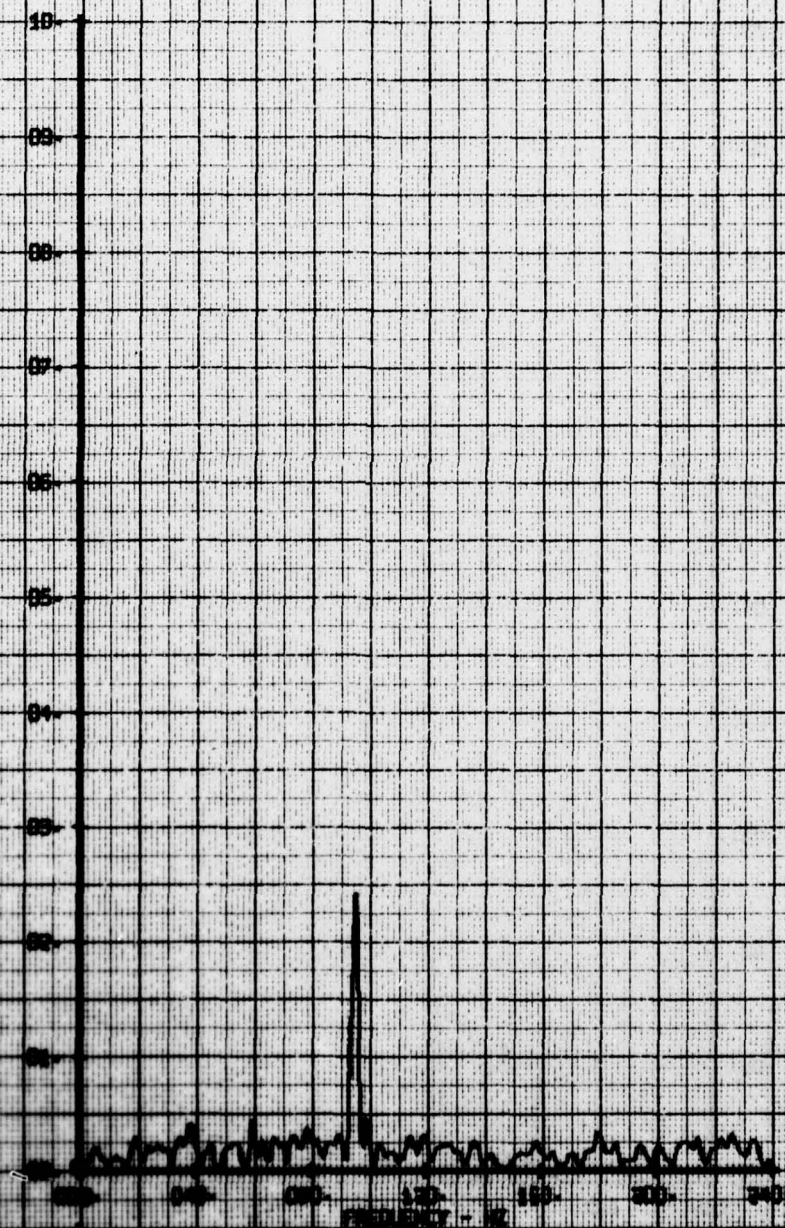


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3-79
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HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 300 FPM CLIMB
RUN 135 TP 4

LEGEND
CH PARAMETER
66 V-BETA

K-2 VELOCITY COMPONENT V-BETA FTS



NOT FILM WAKE FREQUENCY ANALYSIS

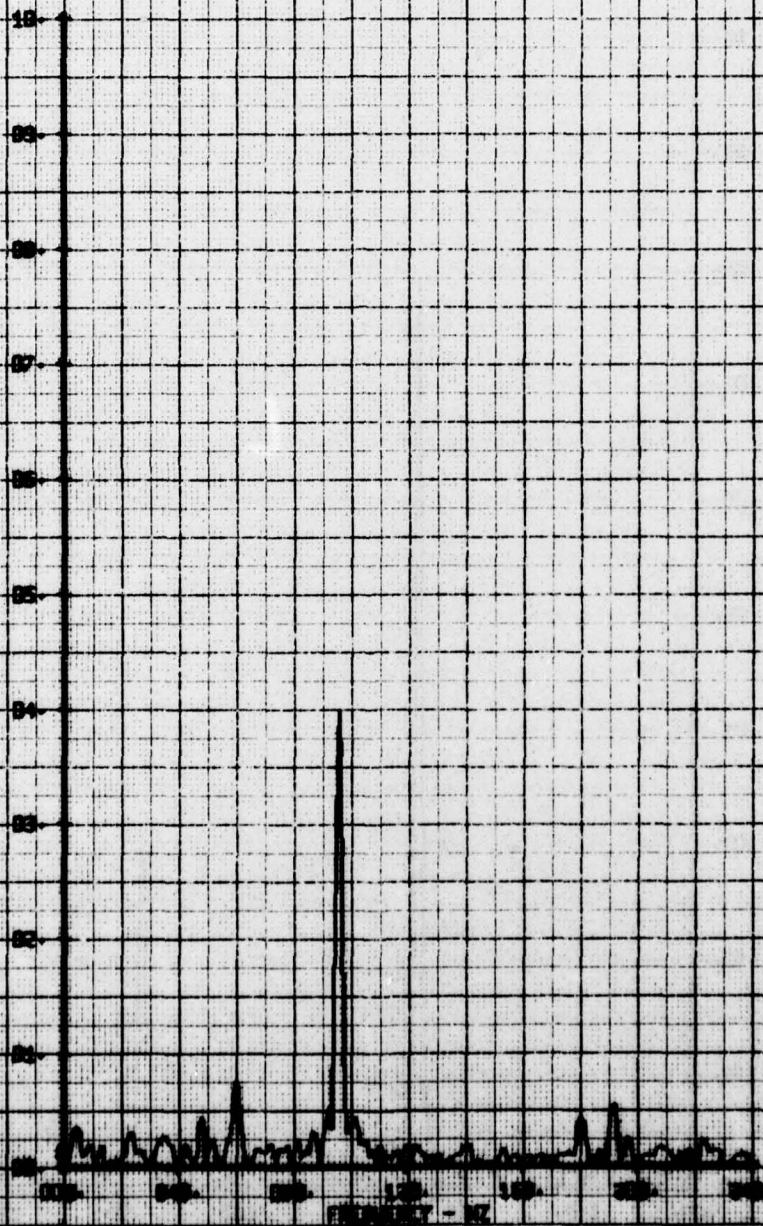
BASE CONDIT: 300 FPM CLIMB

RUN 135 TP 6

LEGEND

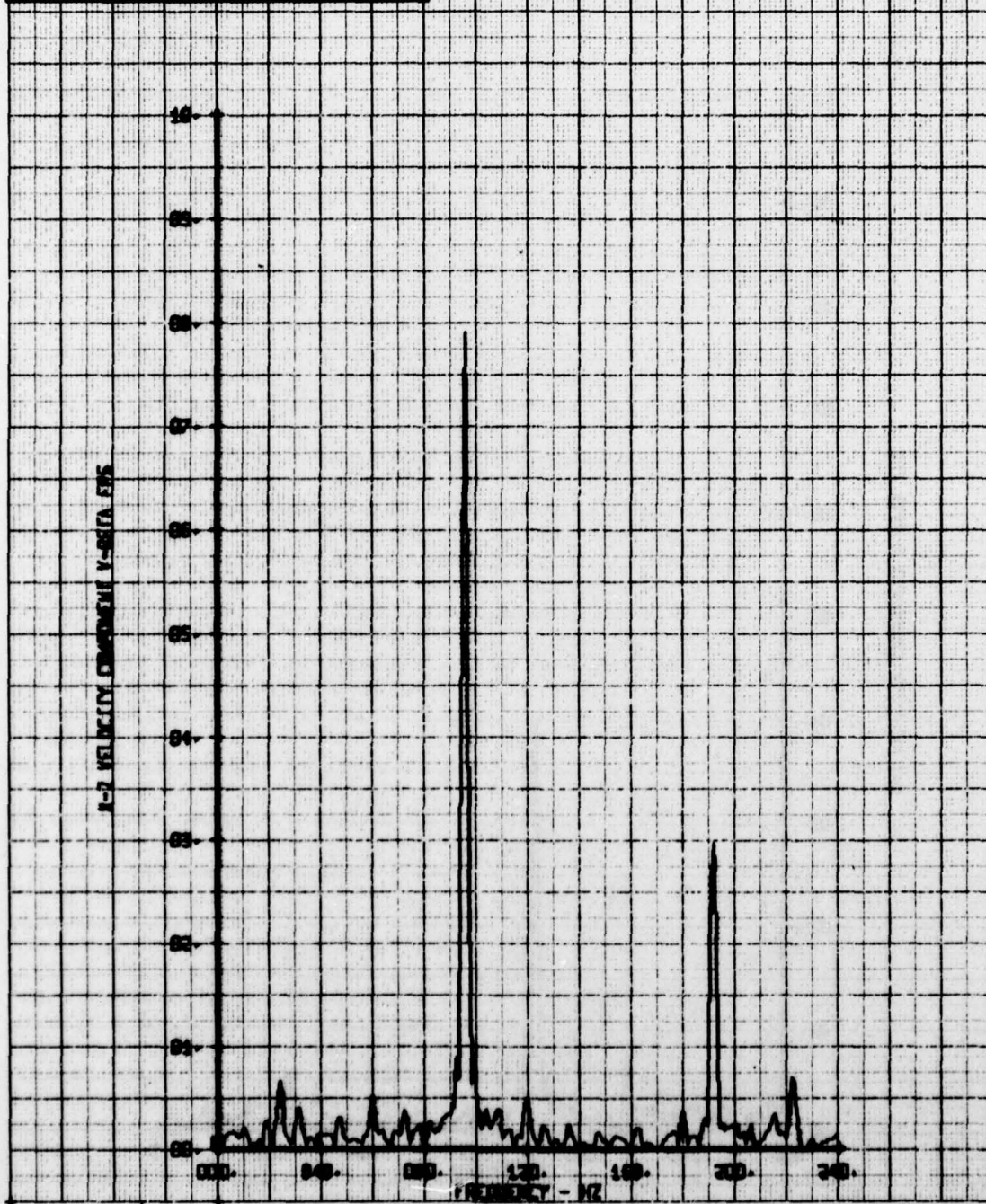
CH	PARAMETER
66	V-BETA

R-R VELOCITY COMPONENT V-BETA FTS



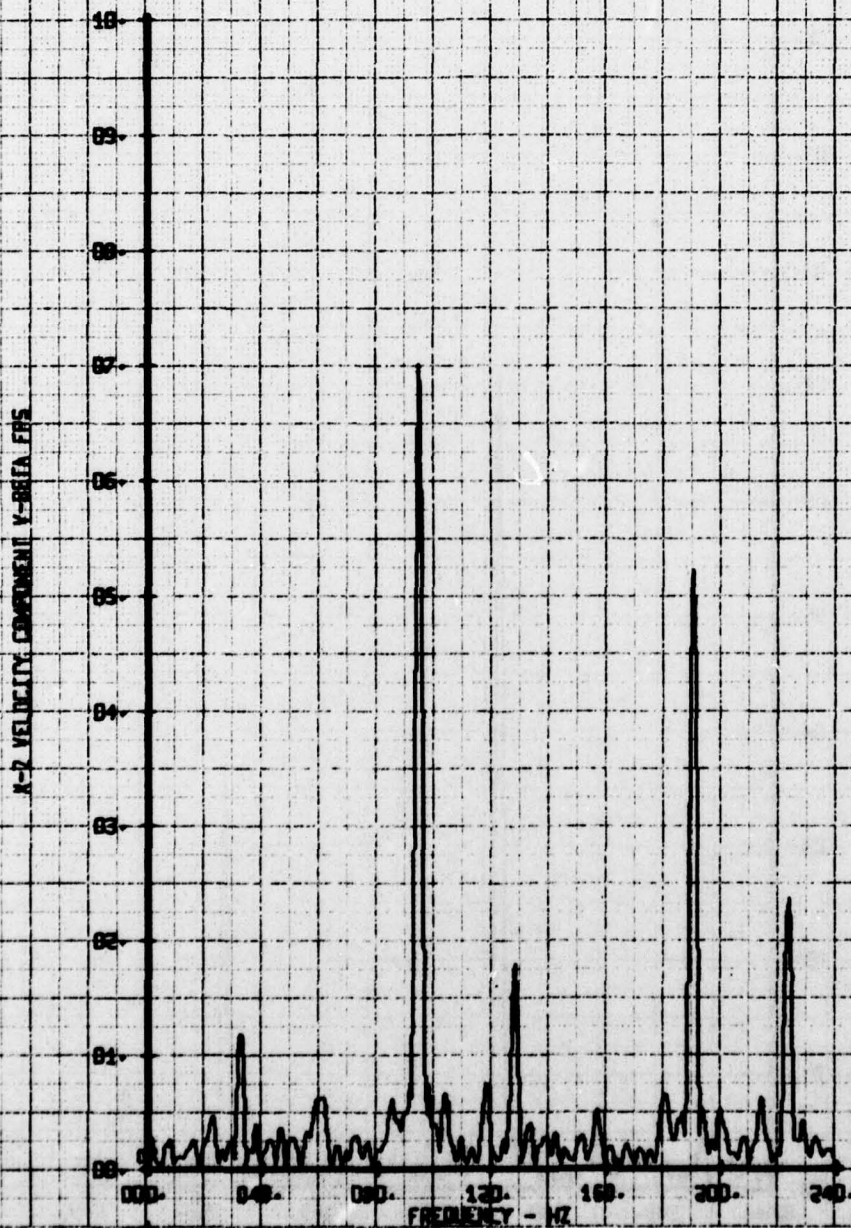
HOT FILM WAVE FREQUENCY ANALYSIS
 BASE CONTE. 800 RPM CLING
 RUN 135 TP 8

LEGEND
 CH PARAMETER
 00 V-BETA



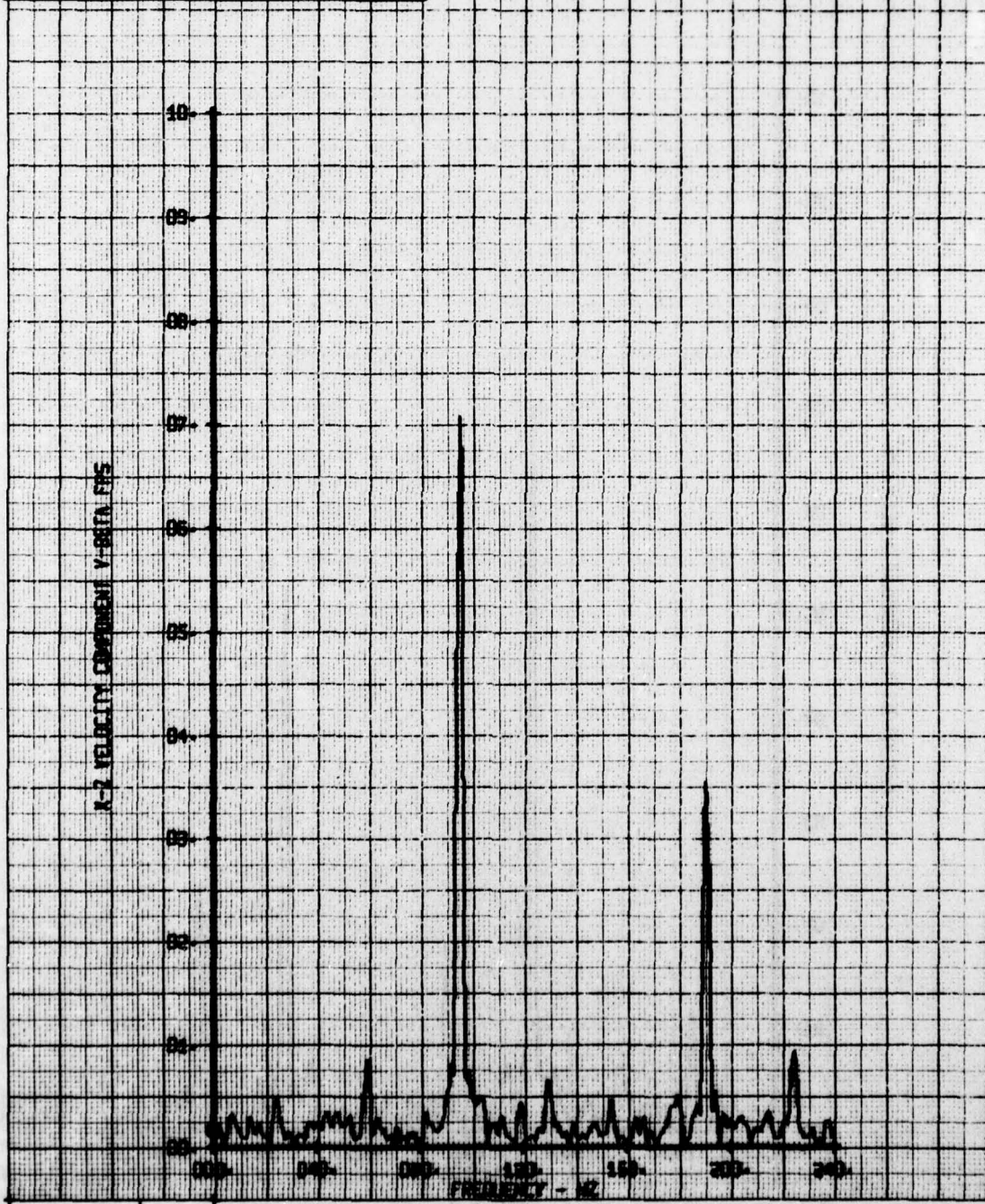
HOT FILM WAVE FREQUENCY ANALYSIS
BASE CORRECTION 9000 RPM CLIMB
RUN 135 TP 10

LEGEND
CH 56
PARAMETER
V-BETA



HOT FILM WAVE FREQUENCY ANALYSIS
 BASE CONFIG. 800 FPM CLIMB
 RUN 135 TP 12

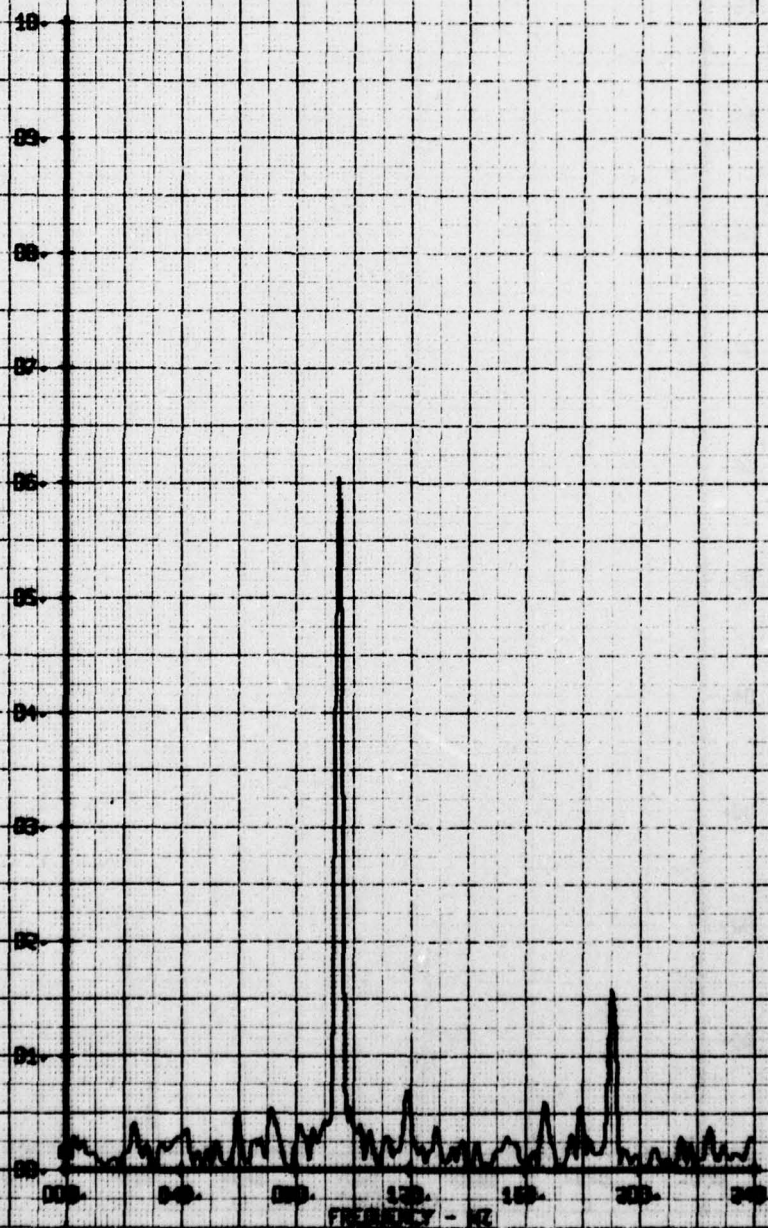
LEGEND
 CH 56 PARAMETER
 V-BETA



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BASE CONFIG. 800 FPM C1140
RUN 135 TP 14

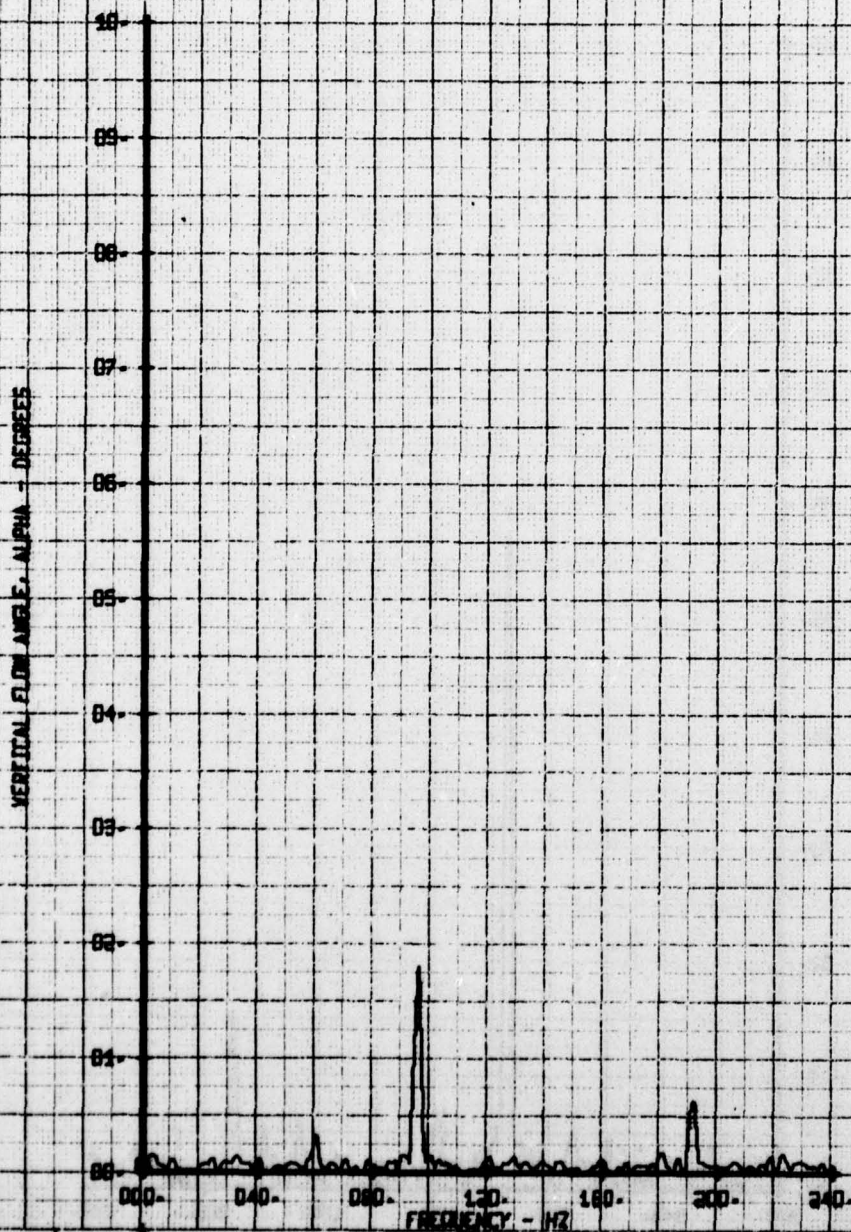
LEGEND
CH 66
PARAMETER
V-BETA

X-2 VELOCITY COMPONENT V-BETA FRS



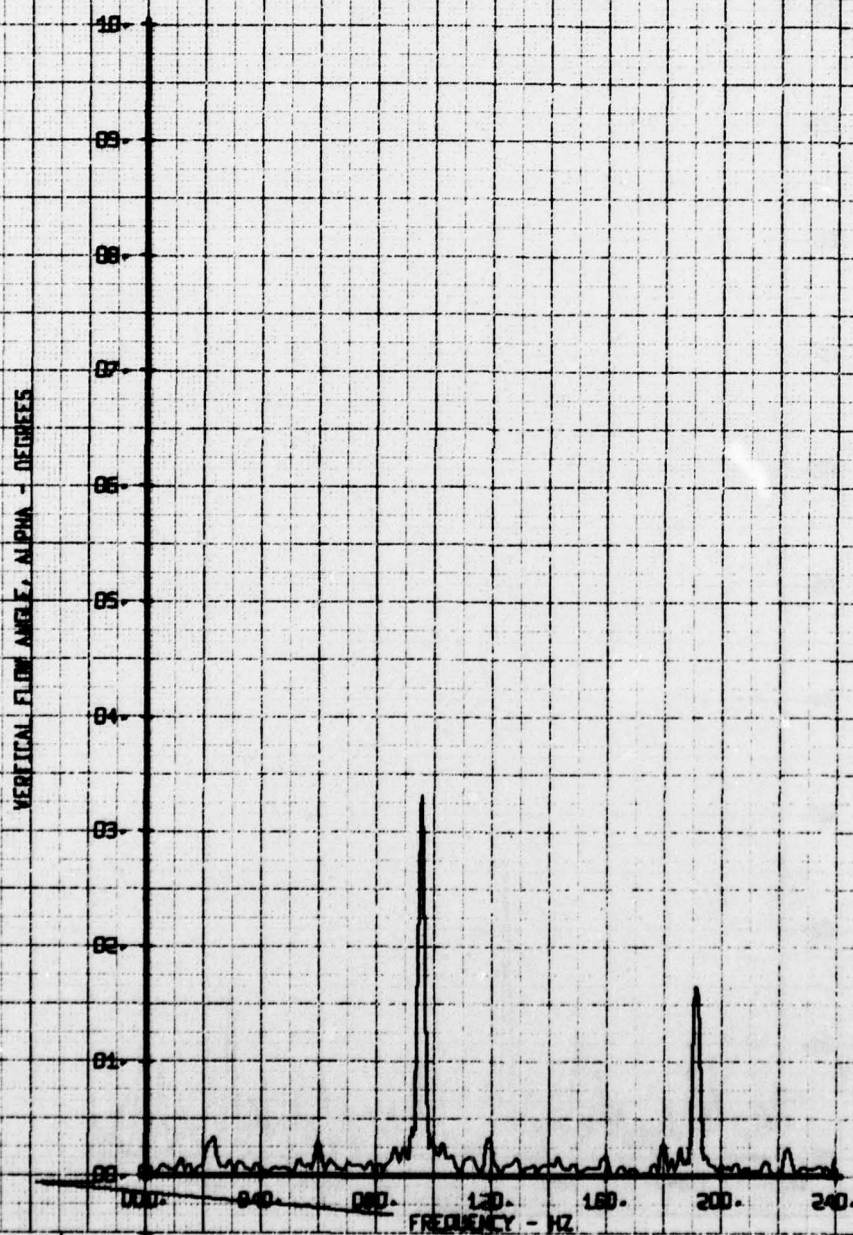
HOT FILM WIRE FREQUENCY ANALYSIS
BASE COMETG. 100. FPM DESCENT
RUN 126 TP 2

LEGEND
CH 65
PARAMETER
ALPHA



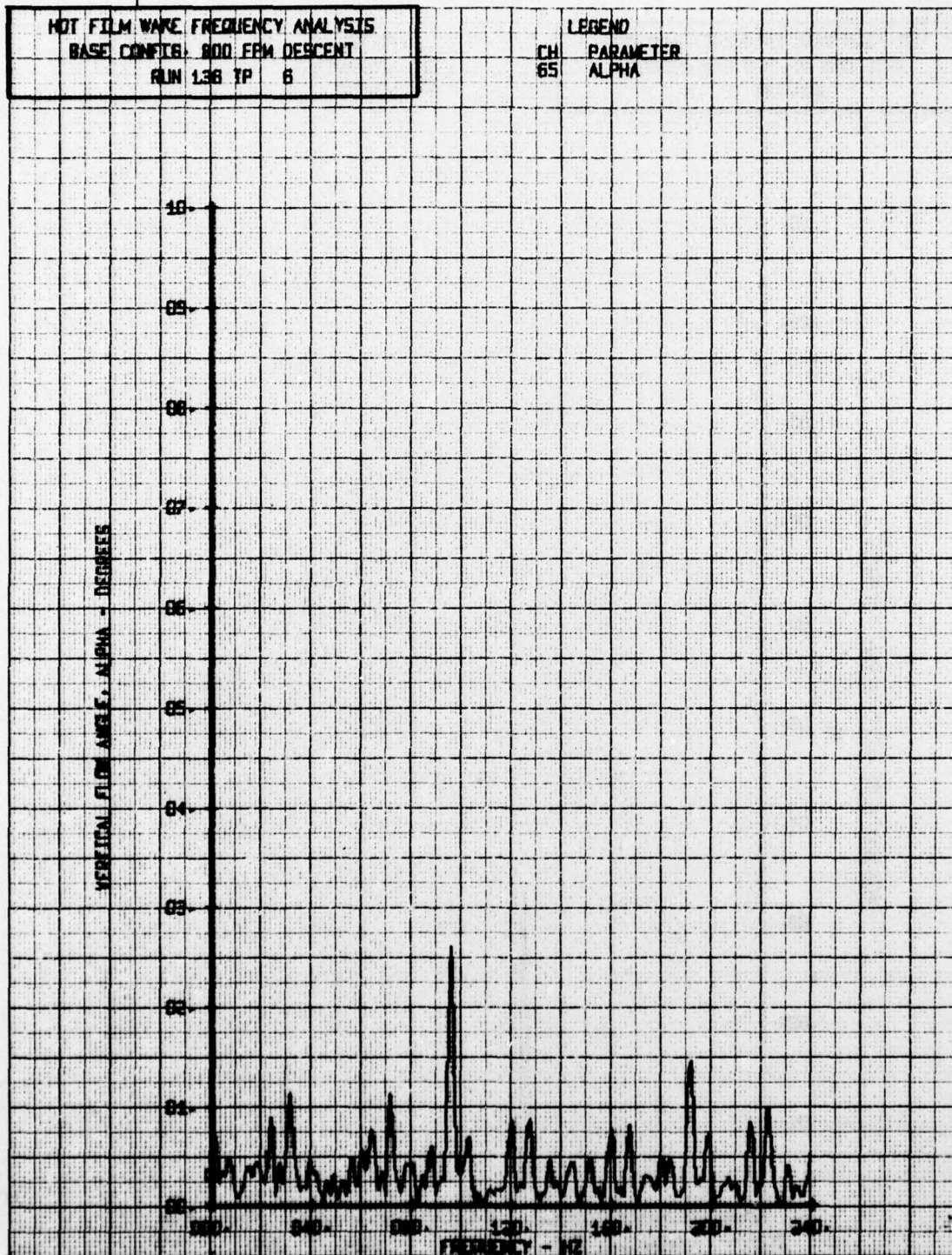
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CORRECT. 900 FPM DESCENT
RUN 136 TP 4

LEGEND
CH PARAMETER
65 ALPHA



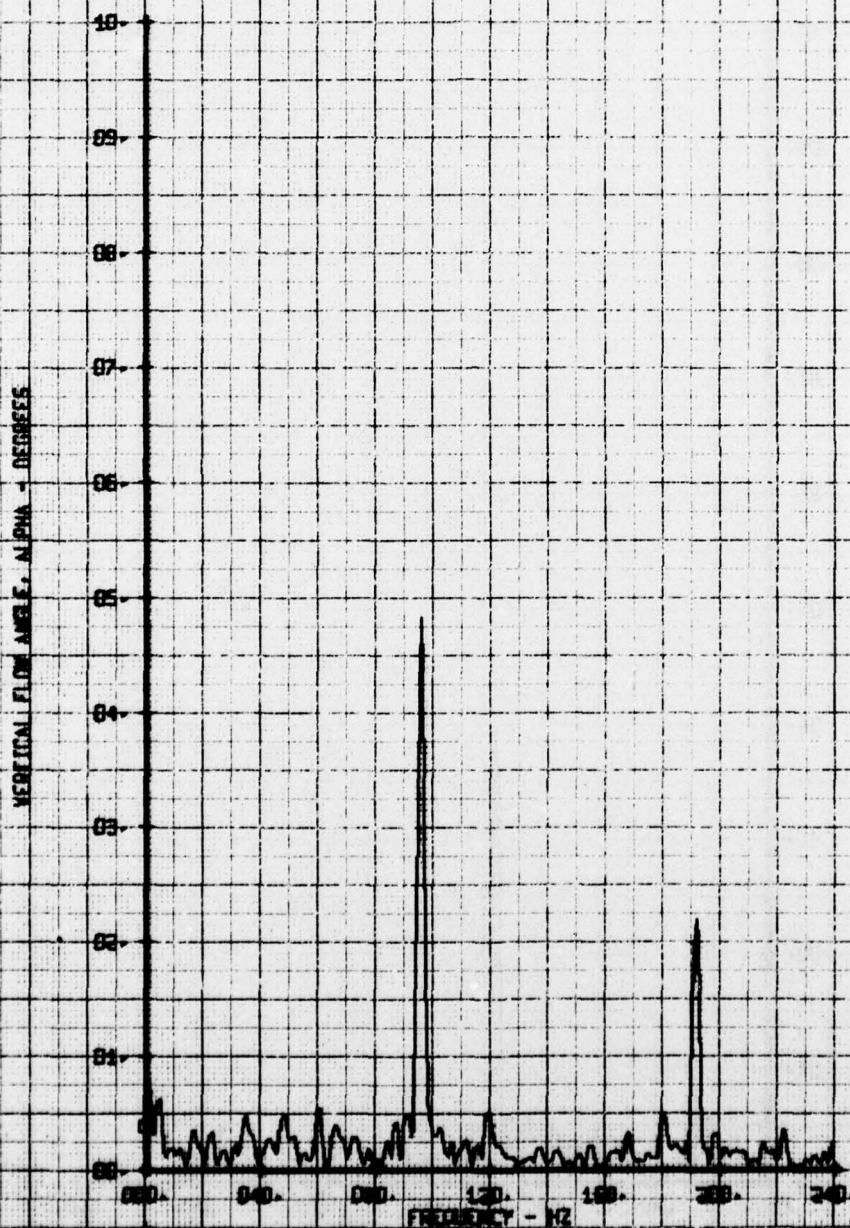
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG: 800 FPM DESCENT
RUN 136 TP 6

LEGEND
CH 65
PARAMETER ALPHA



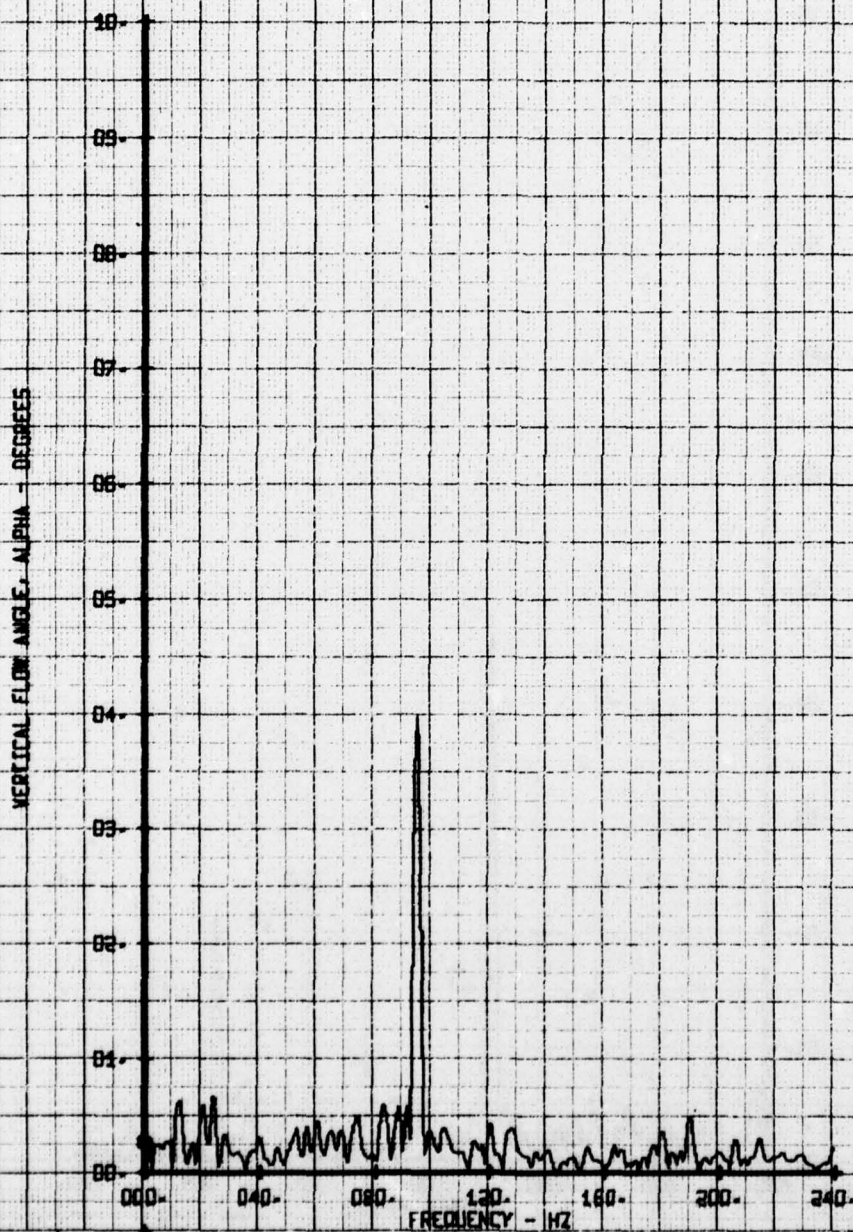
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 800 FPM DESCENT
RUN 136 YP 8

LEGEND
CH 65
PARAMETER
ALPHA



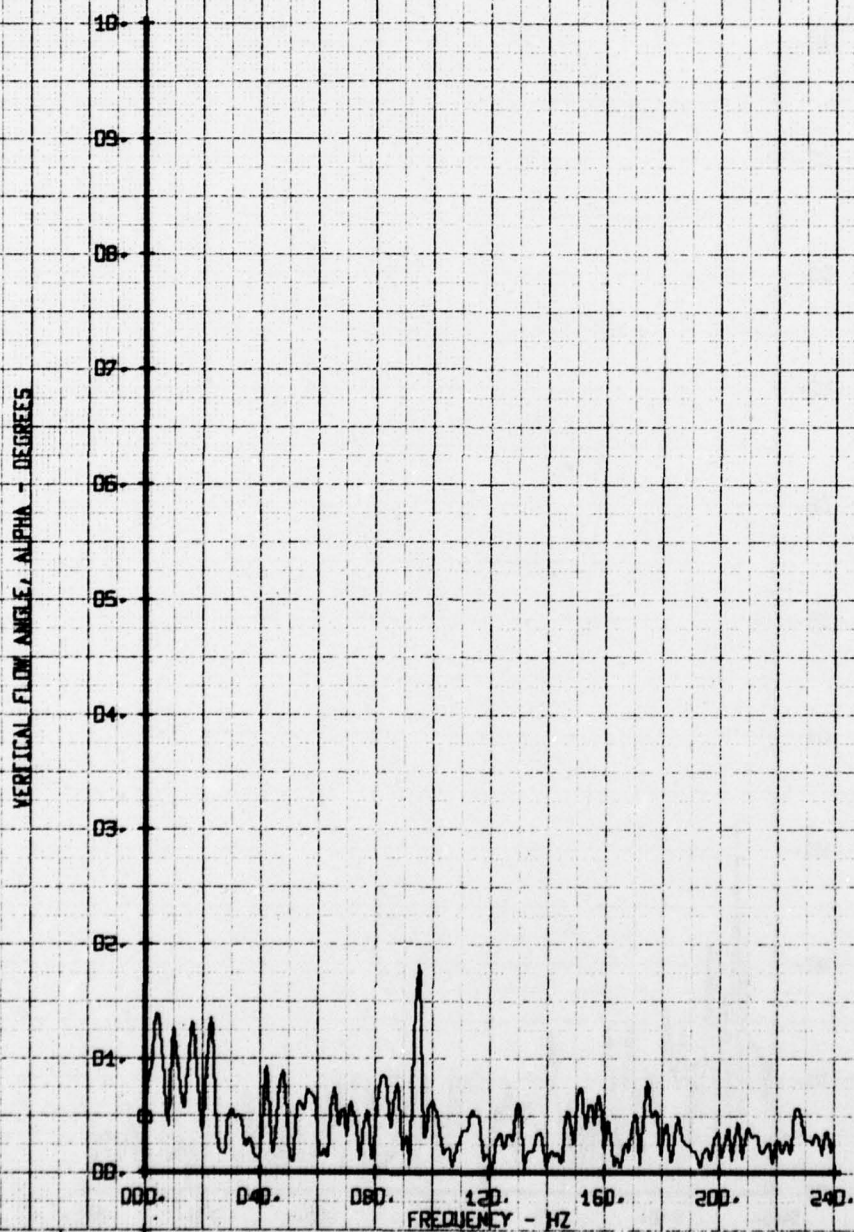
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONE TB- 800 FPM DESCENT
RUN 136 TP 1D

LEGEND
CH 65
PARAMETER
ALPHA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 800 FPM DESCENT
RUN 135 TP 12

LEGEND
CH 65
PARAMETER
ALPHA



HOT FILM WAKE FREQUENCY ANALYSIS

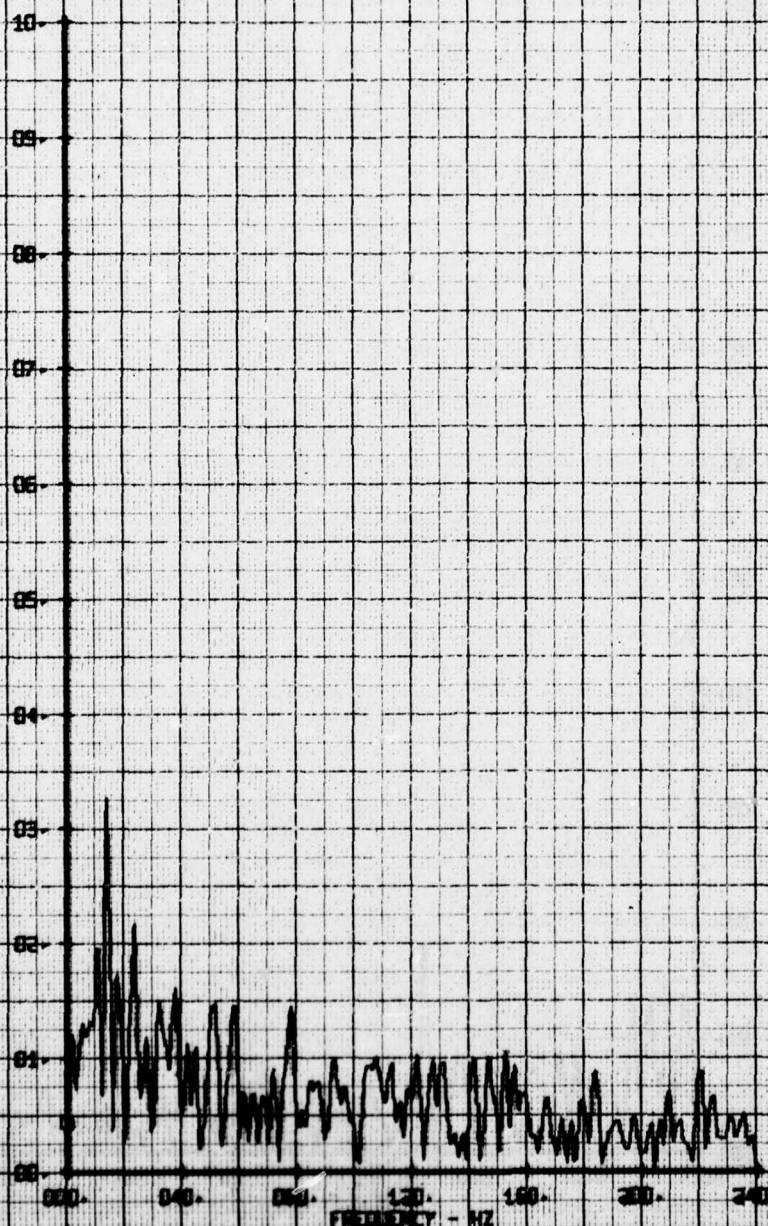
BASE CONFIG: 000 FPM DESCENT

RUN 135 YP 14

LEGEND

CH PARAMETER
65 ALPHA

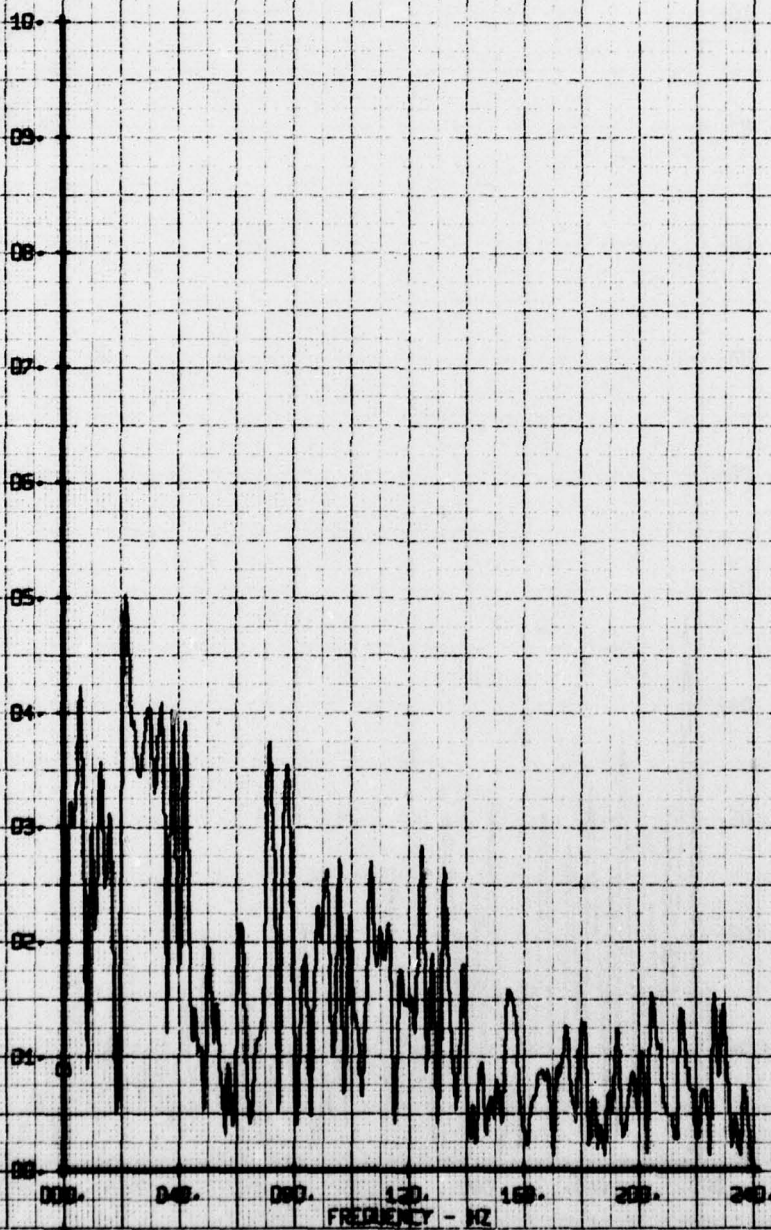
VERTICAL FLOW ANGLE, ALPHA - DEGREES



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 800 FPM DESCENT
RUN 136 TP 17

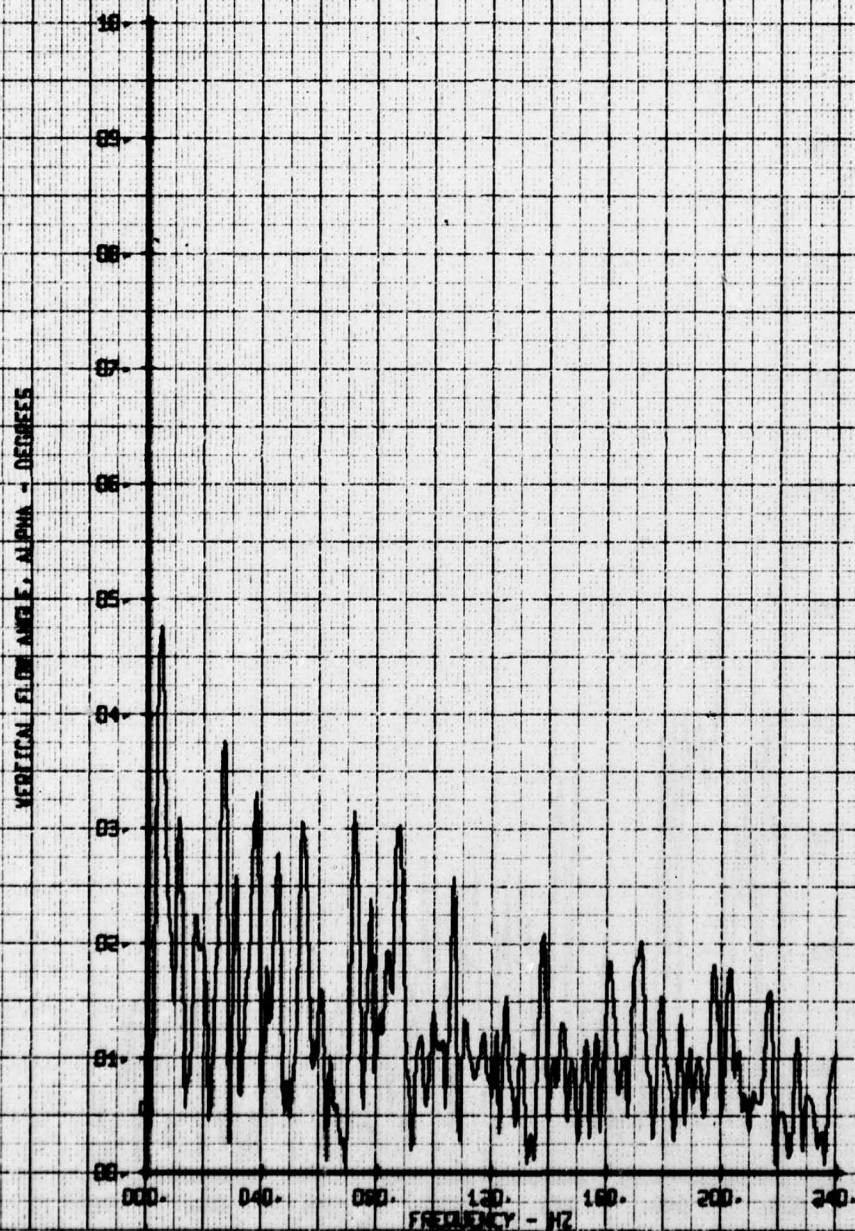
LEGEND
CH 65 PARAMETER
ALPHA

VERTICAL FLOW ANGLE, ALPHA - DEGREES



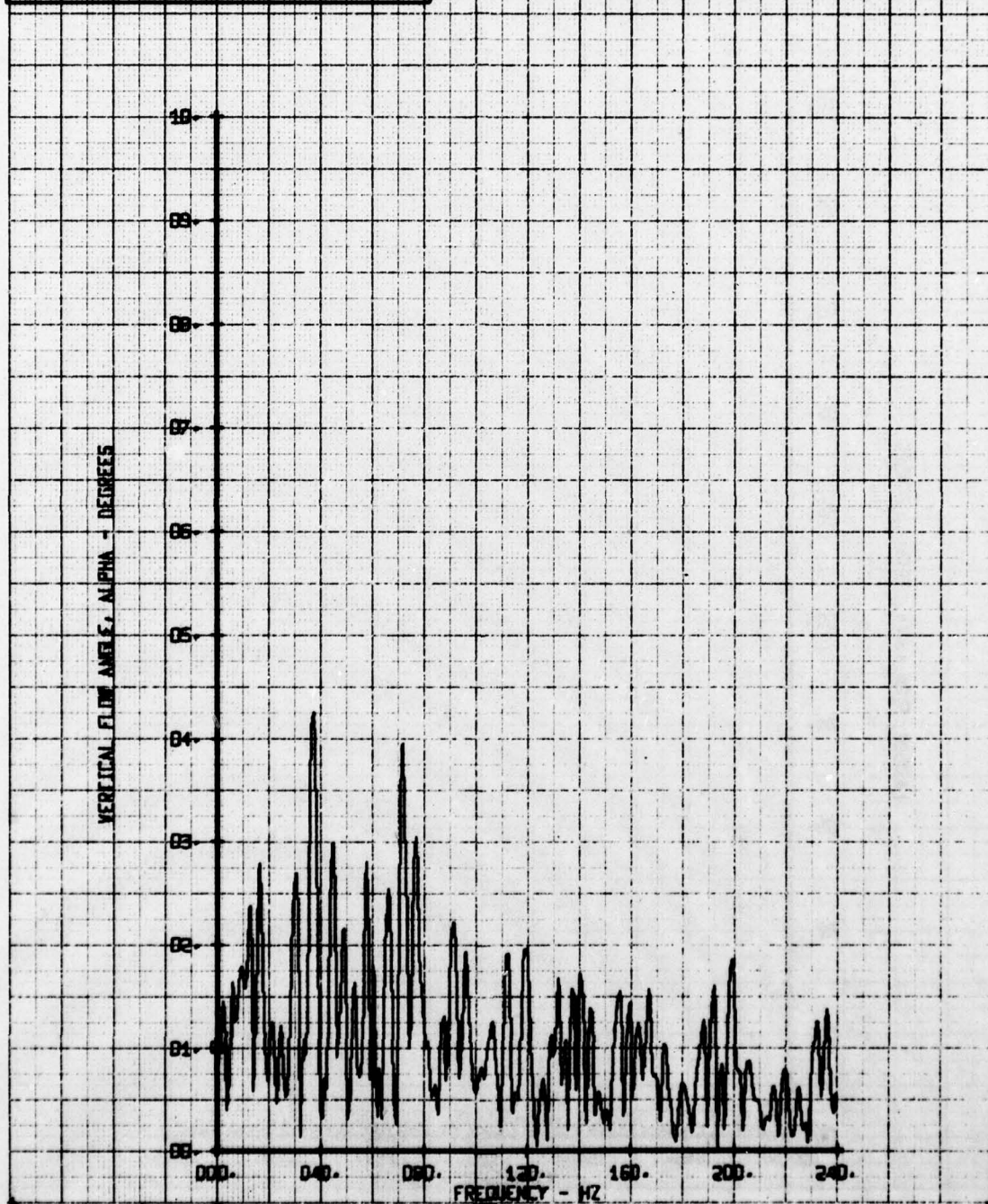
NOT FILM WAVE FREQUENCY ANALYSIS
BASE CORRECTION 800 FPM DESCENT
RUN 136 YP 18

LEGEND
CH PARAMETER
85 ALPHA



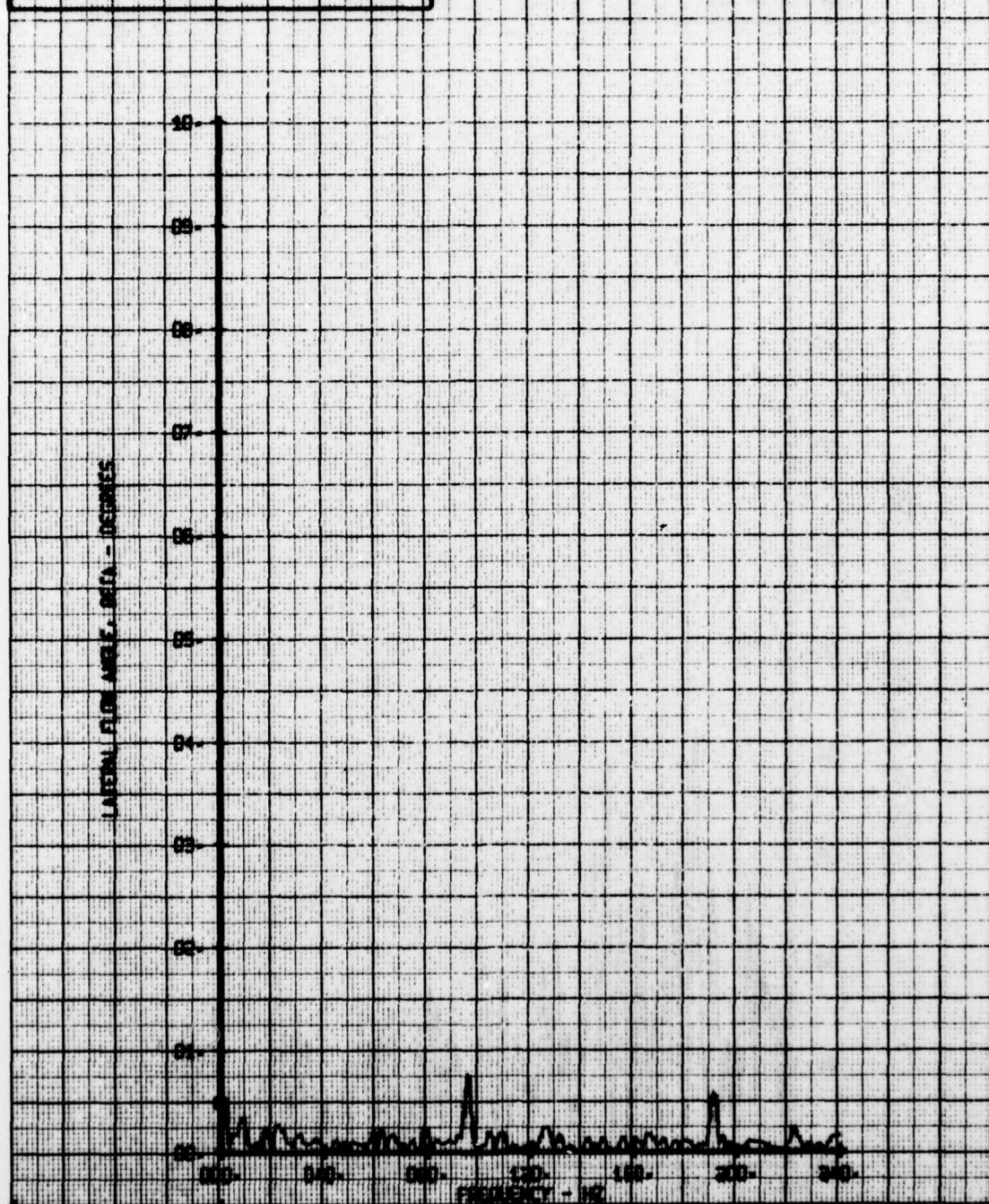
NOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. NO. FFM DESCENT
RUN 135 TP 19

LEGEND
CH 65
PARAMETER
ALPHA



HOT FILM WIRE FREQUENCY ANALYSIS
BASE CONFG. 800 FPM DESCENT
RUN 136 TP 2

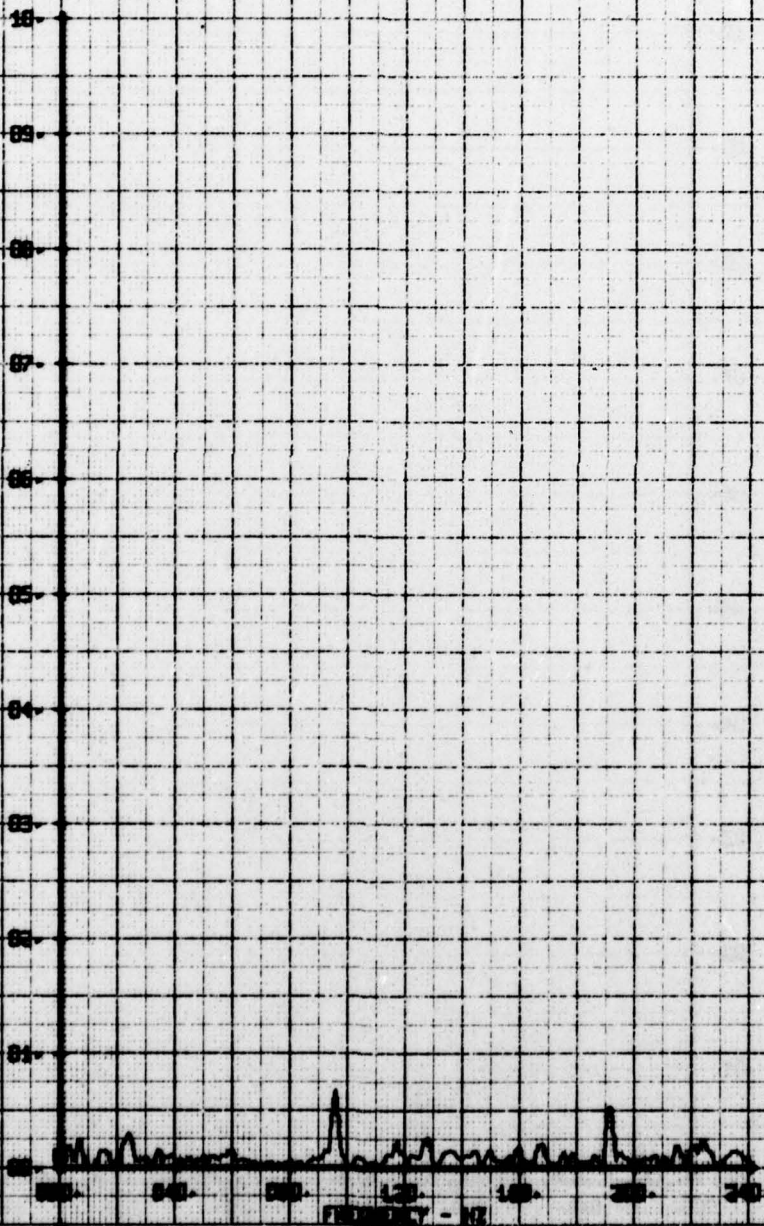
LEGEND
CH 66
PARAMETER
BETA



NOT FILM WARE FREQUENCY ANALYSIS
BASE CONFIG. 800 FPM DESCENT
RUN 136 TP 4

LEGEND
CH PARAMETER
66 BETA

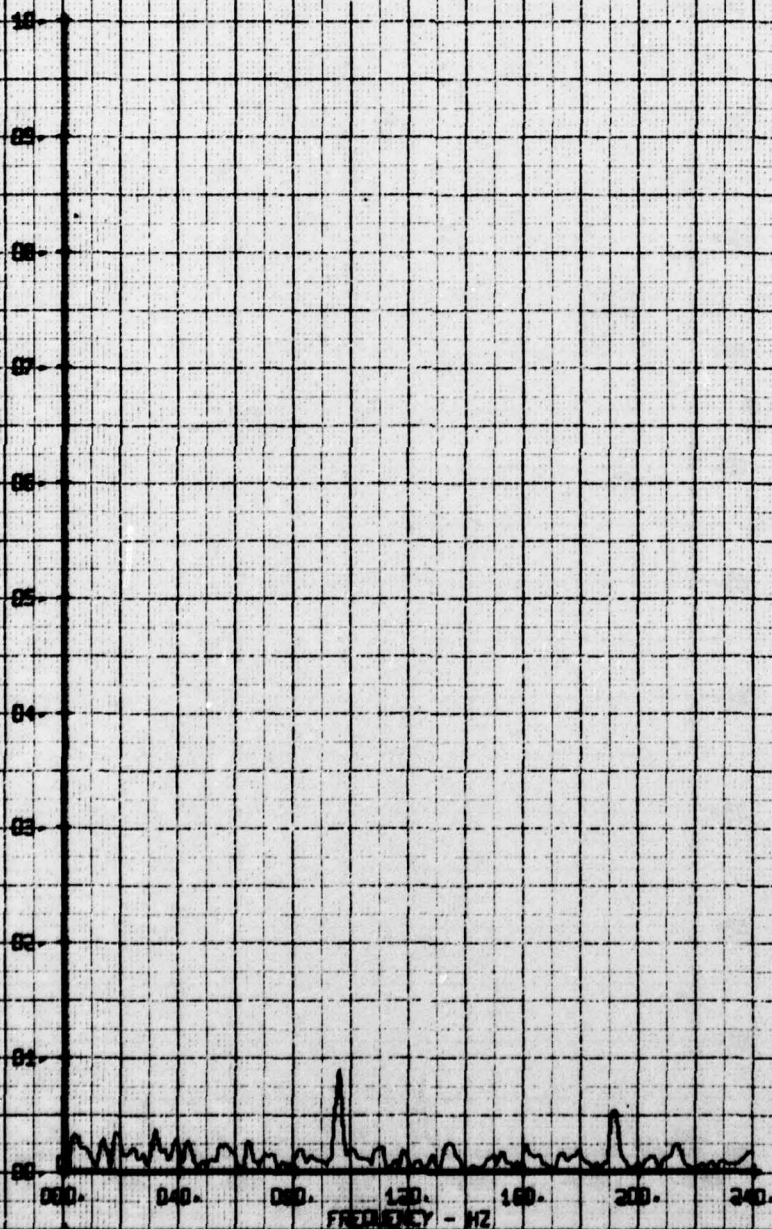
LATERAL FLOW ANGLE, BETA - DEGREES



HOT FILM WIRE FREQUENCY ANALYSIS
BASE CENTER, 800 FPM DESCENT
RUN 136 TP 6

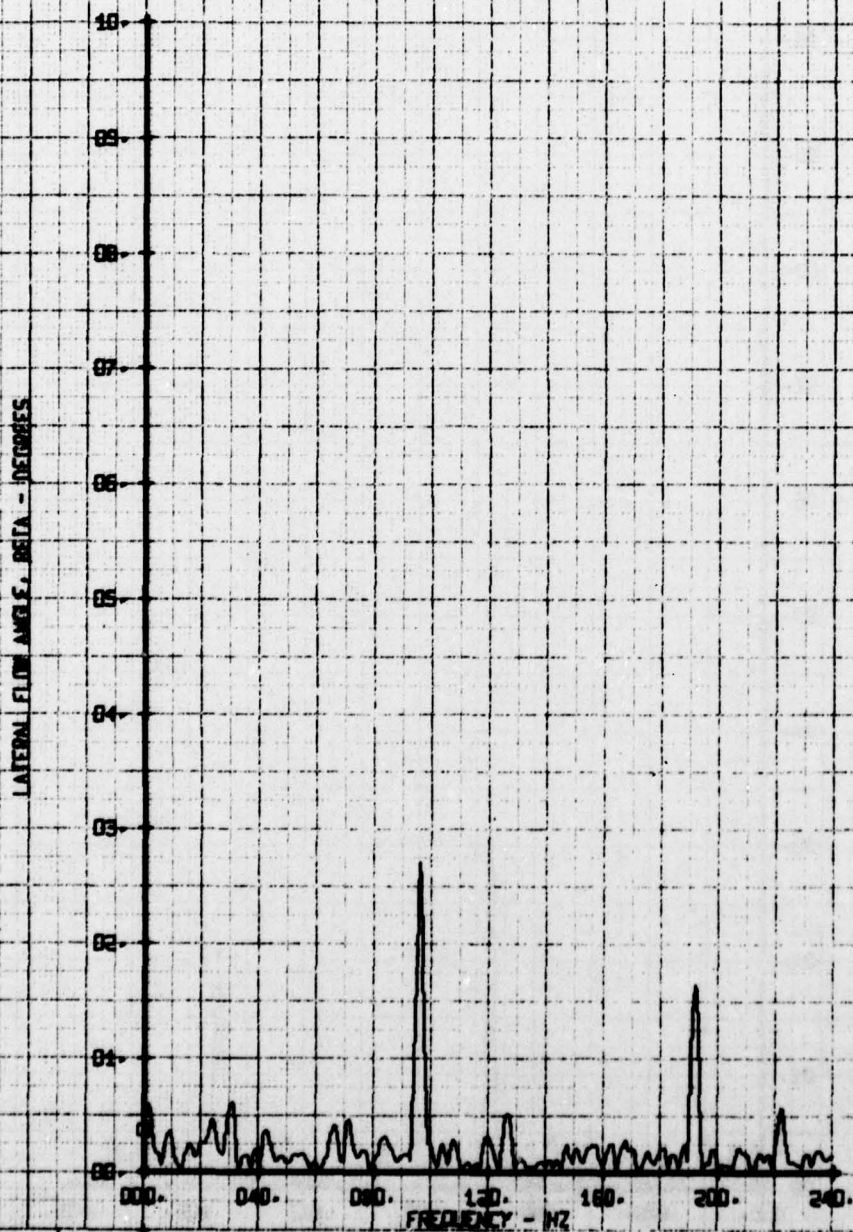
LEGEND
CH PARAMETER
66 BETA

LATERAL FLOW ANGLE, BETA - DEGREES



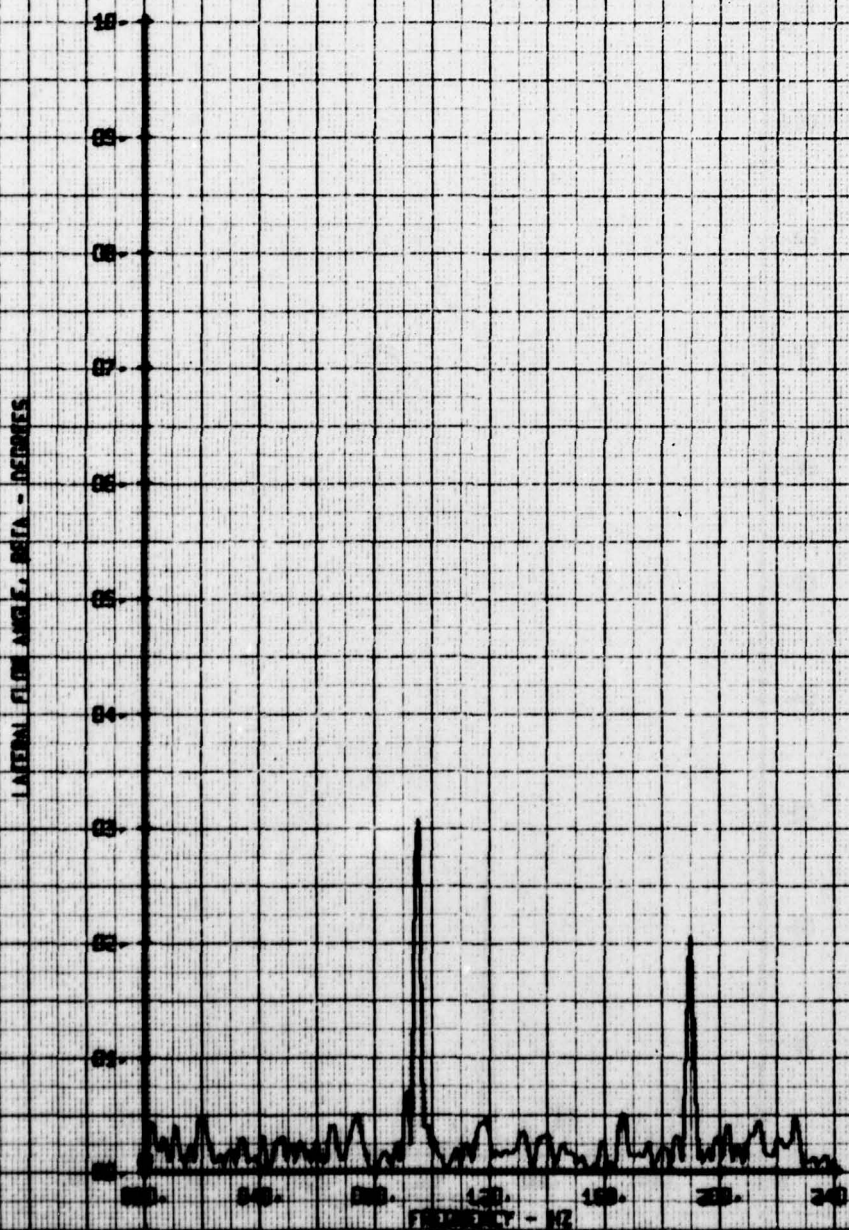
HOT FILM WAKE FREQUENCY ANALYSIS
BASE COUNTS: 800 FPM DESCENT
RUN 136 TP 8

LEGEND
CH 66
PARAMETER
BETA



HOT FILM WIRE FREQUENCY ANALYSIS
BASE CONTRA: 800 FPM DESCENT
RUN 136 TP 10

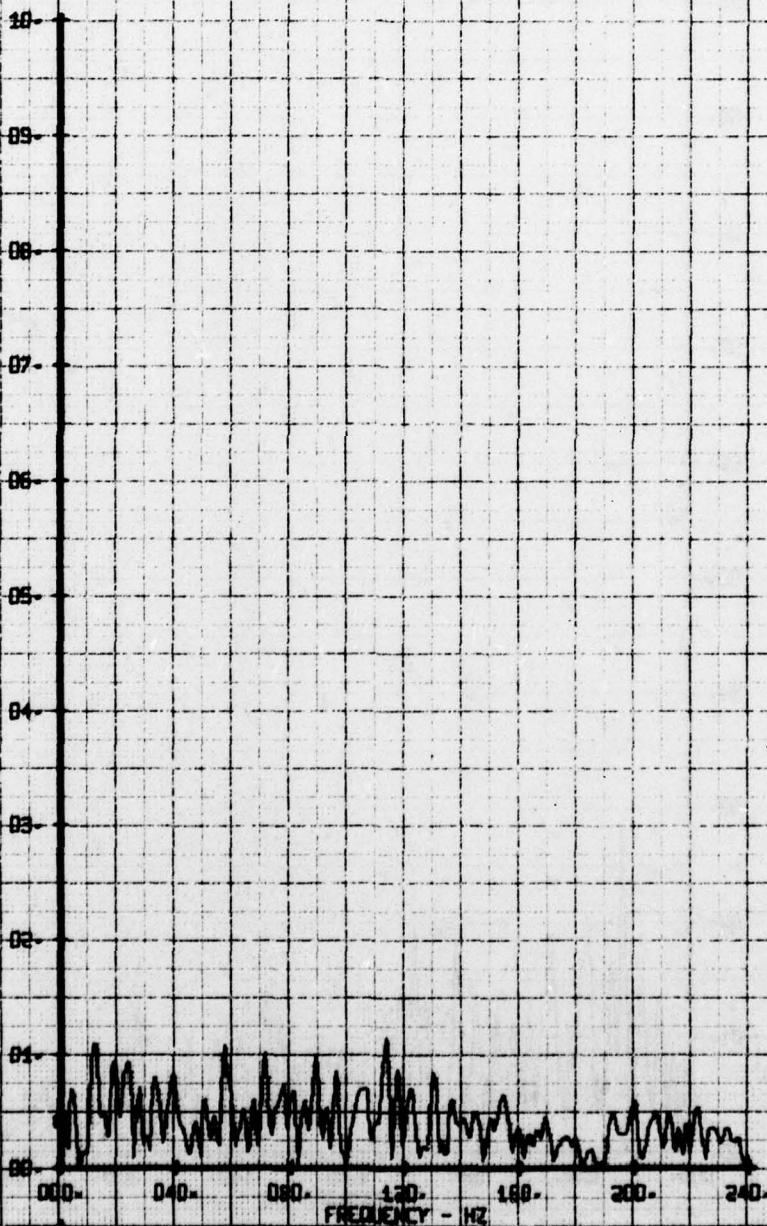
LEGEND
CH PARAMETER
66 BETA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 800 FPM DESCENT
RUN 136 TP 12

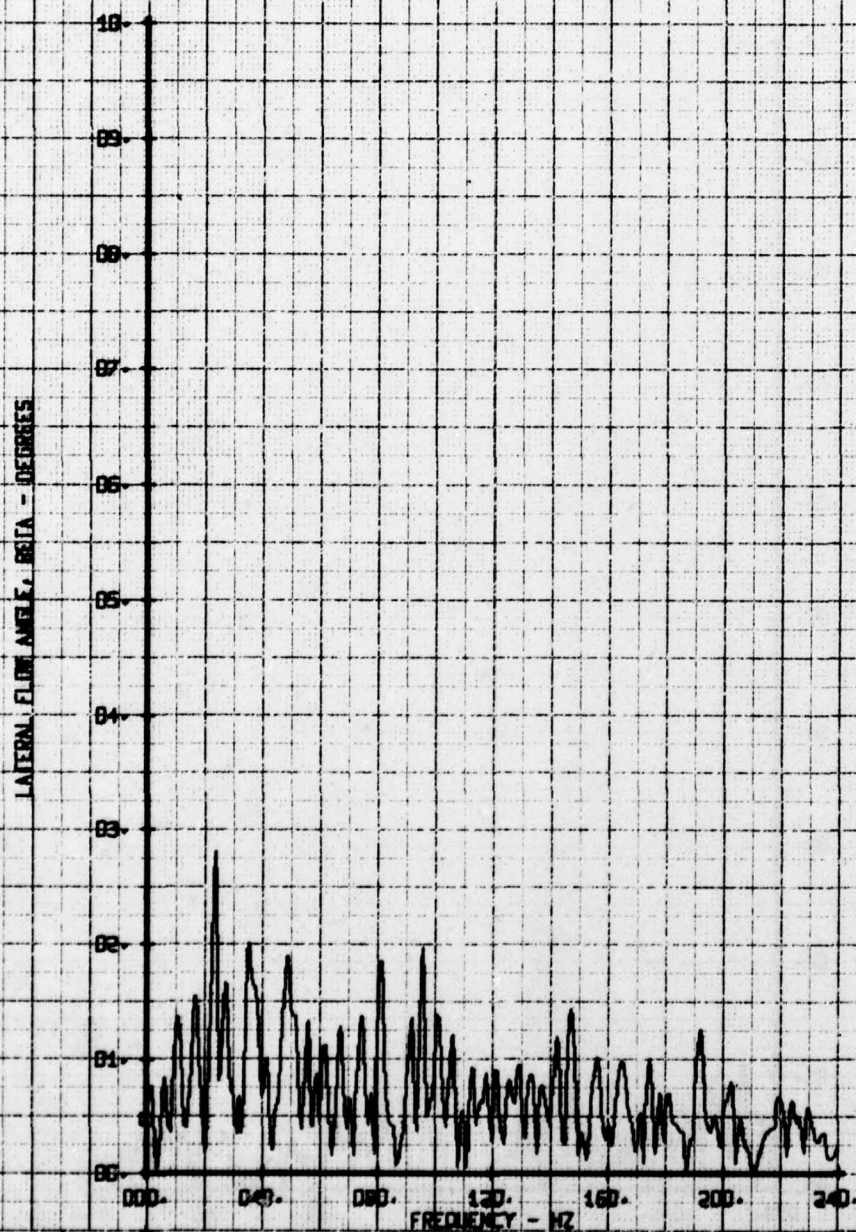
LEGEND
CH 66
PARAMETER
BETA

LATERAL FLOW ANGLE, BETA - DEGREES



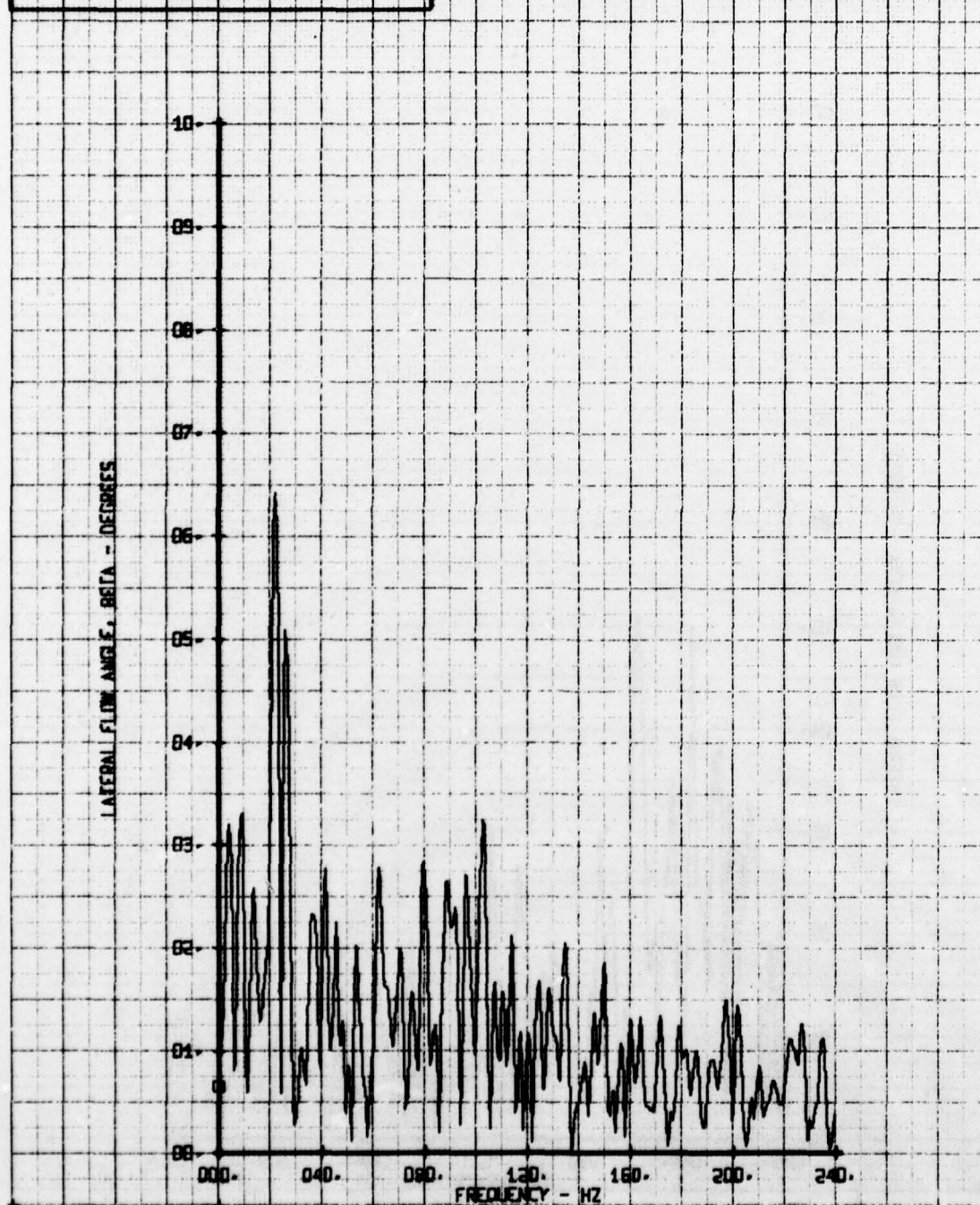
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONE TO 900 FPM DESCENT
RUN 135 TP 14

LEGEND
CH 66
PARAMETER
BETA



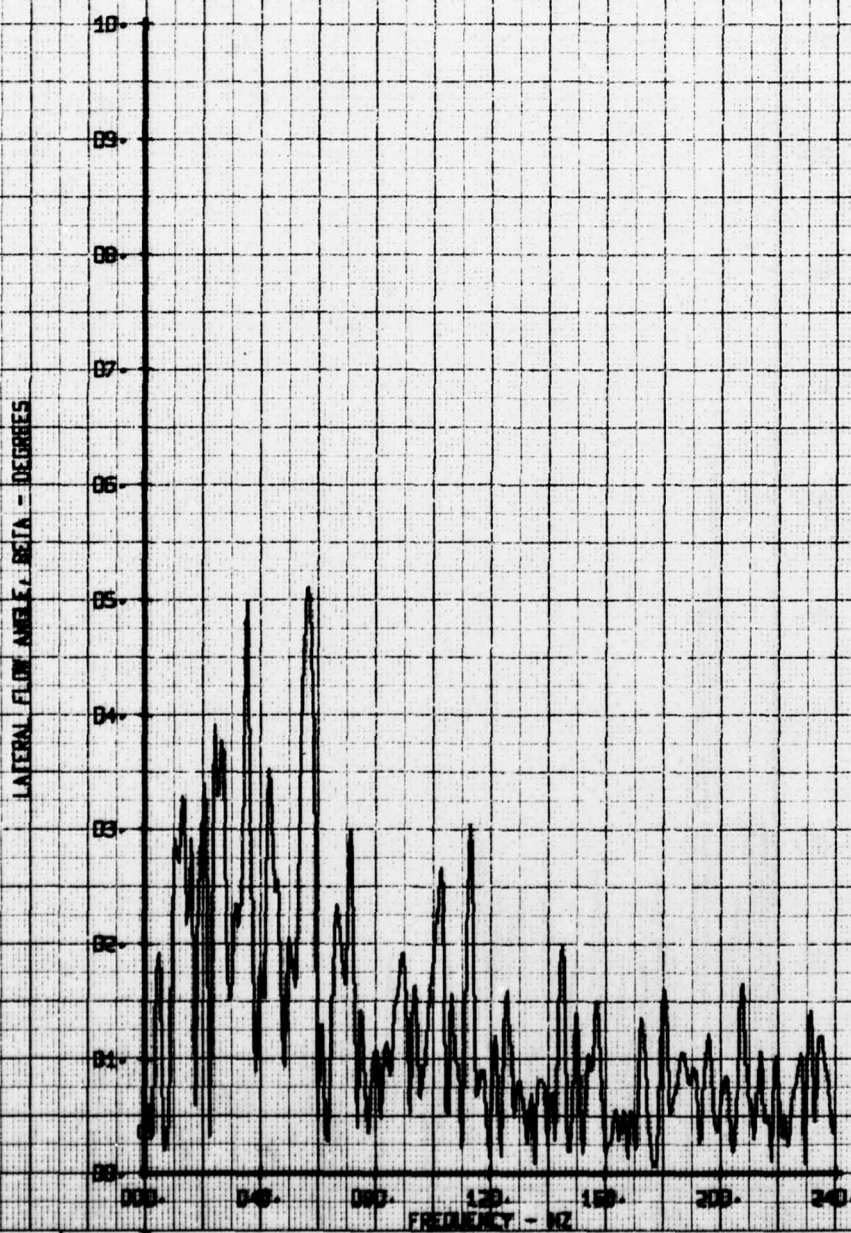
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BASE CONFIG. 800 FPM DESCENT
RUN 136 TP 17

LEGEND
CH 66
PARAMETER
BETA



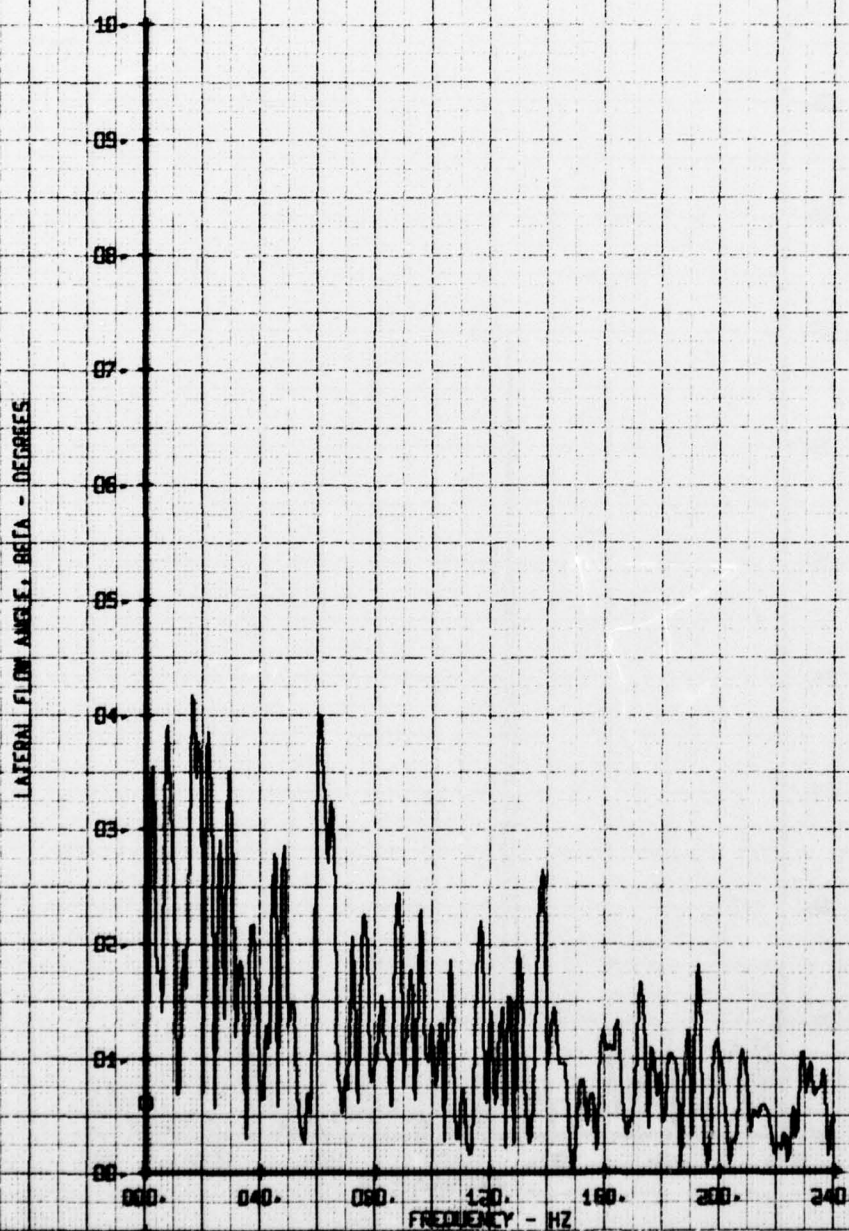
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 800 FPM DESCENT
RUN 135 TP 18

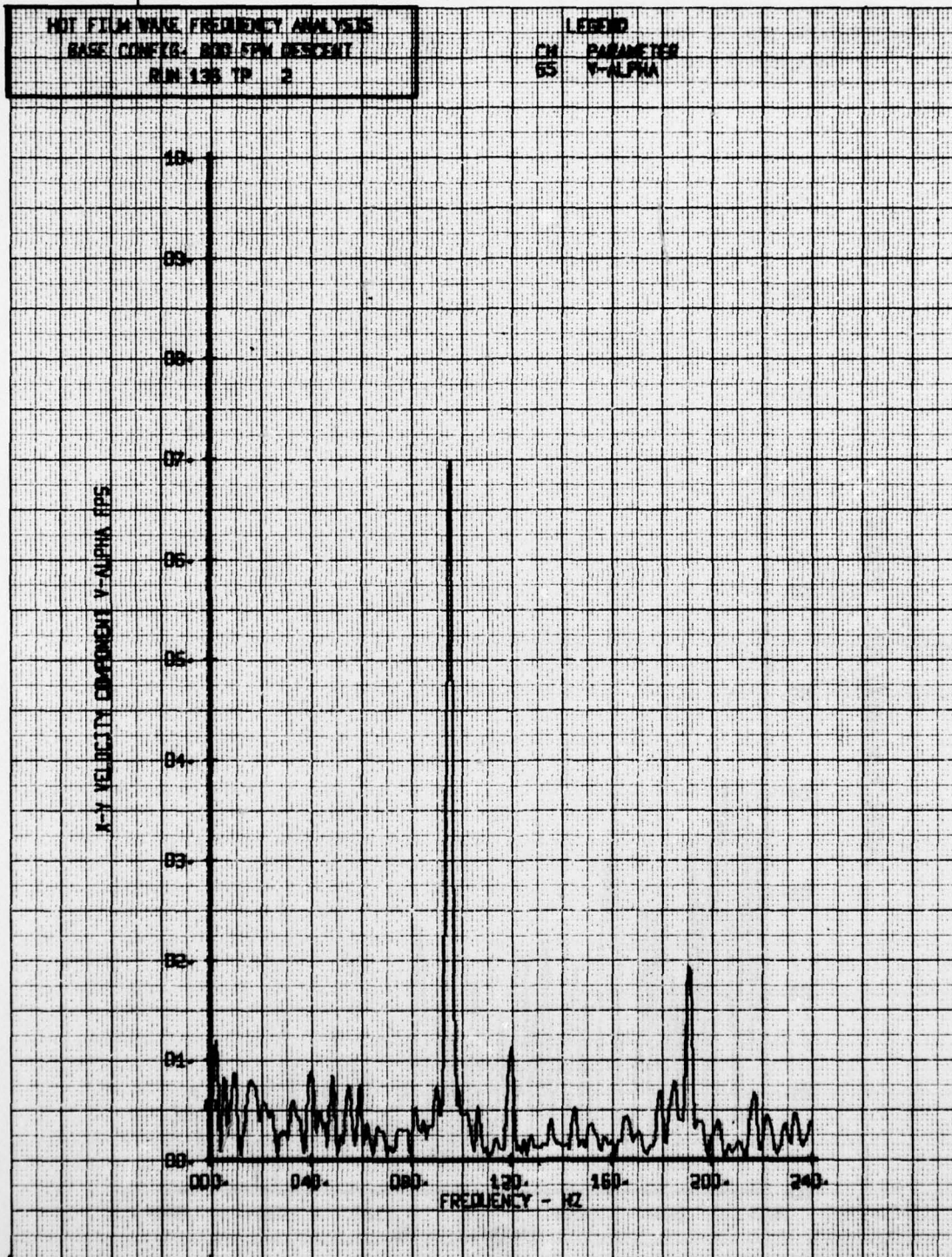
LEGEND
CH 66
PARAMETER
BETA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 800 FPM DESCENT
RUN 136 TP 19

LEGEND
CH 66 PARAMETER
BETA

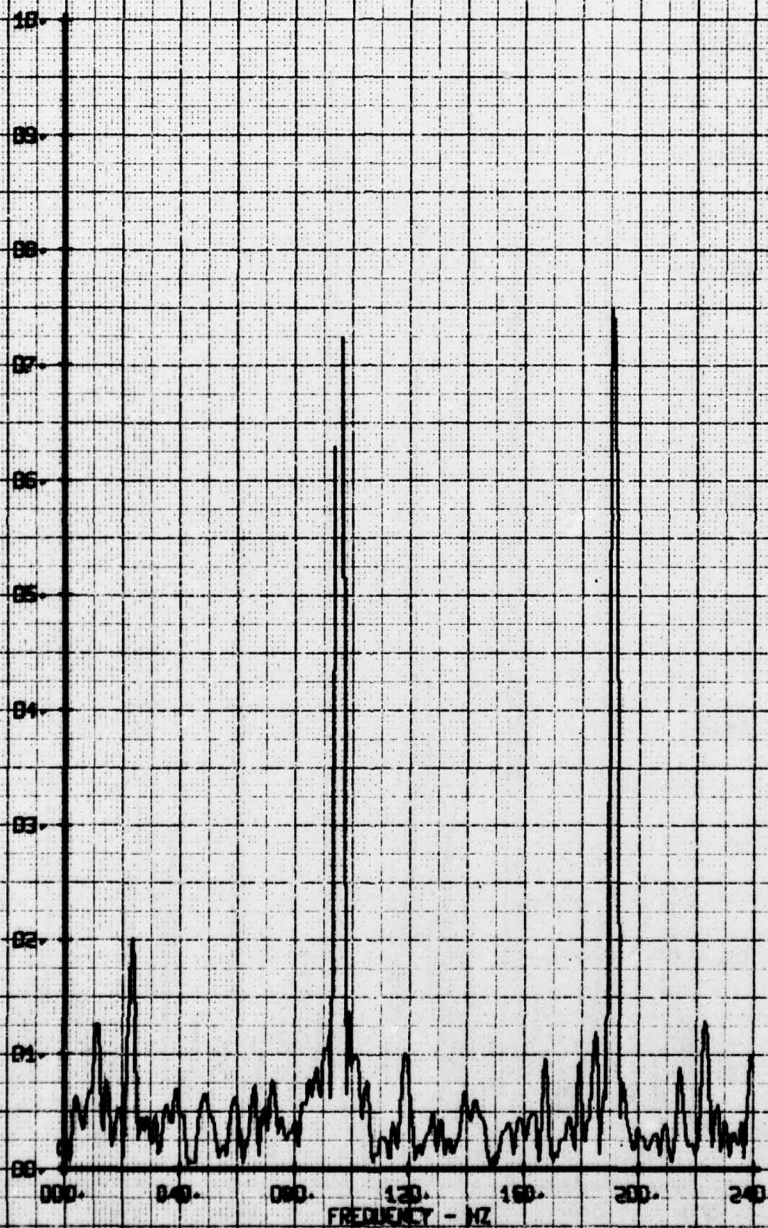




HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 800 FPM DESCENT
RUN 136 TP 4

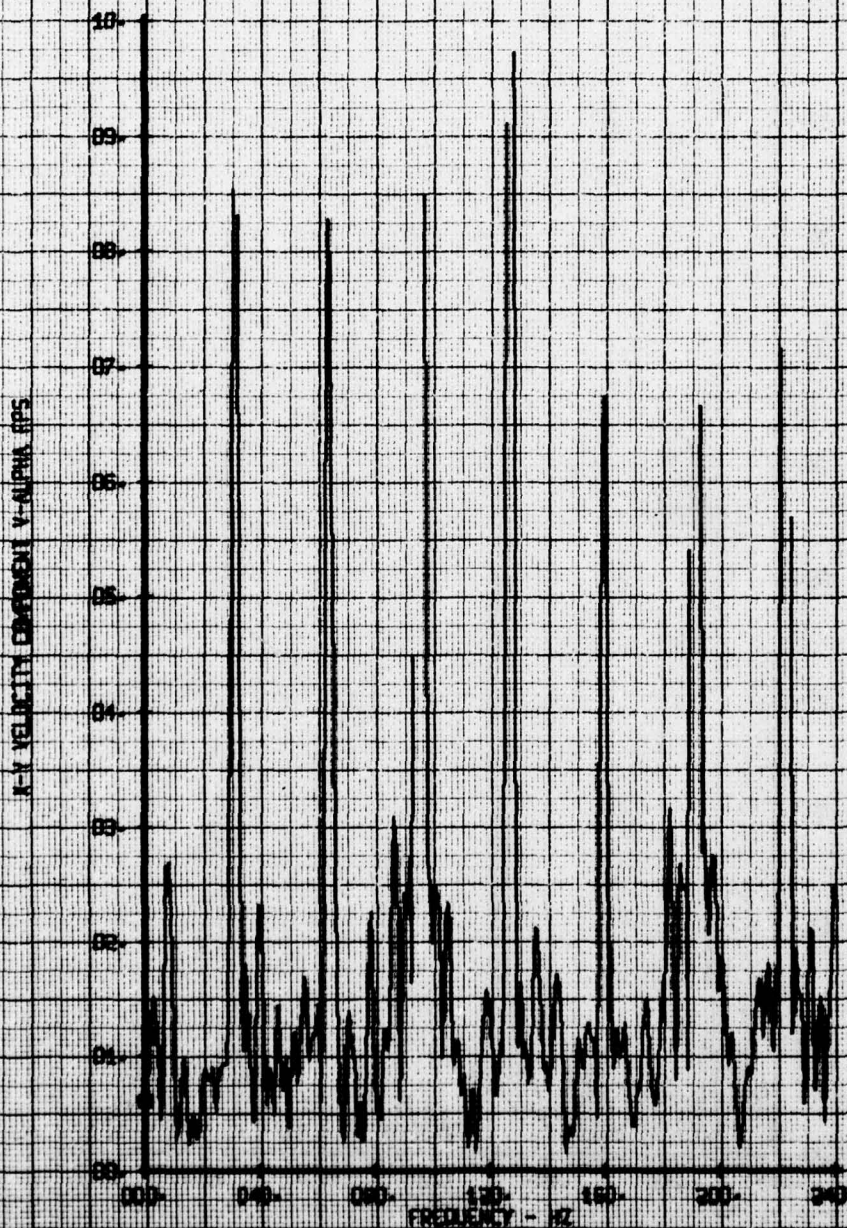
LEGEND
CH PARAMETER
65 V-ALPHA

X-Y VELOCITY COMPONENT V-ALPHA RMS



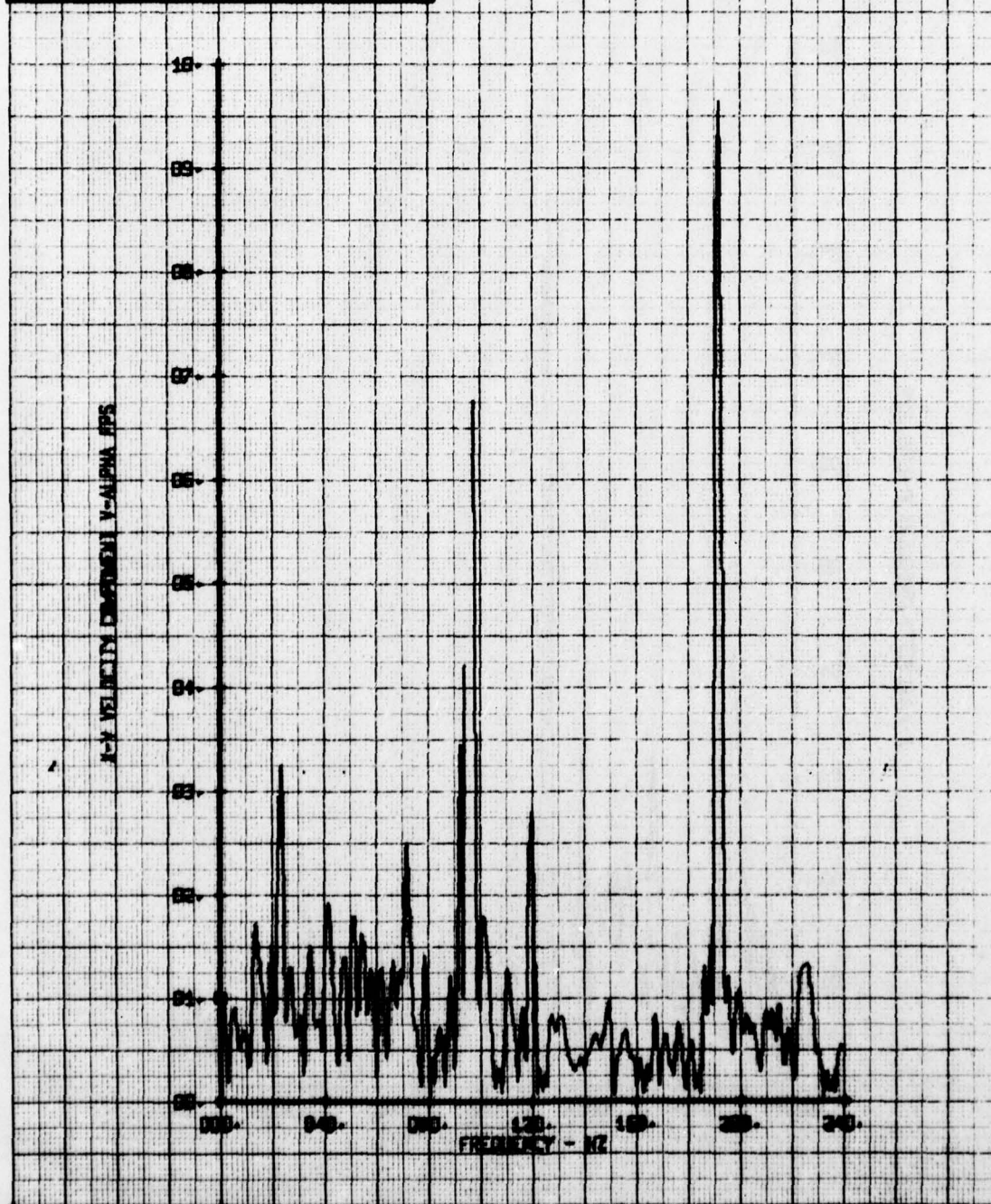
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG- 800 FPM DESCENT
RUN 136 TP 6

LEGEND
CH 65
PARAMETER
V-ALPHA



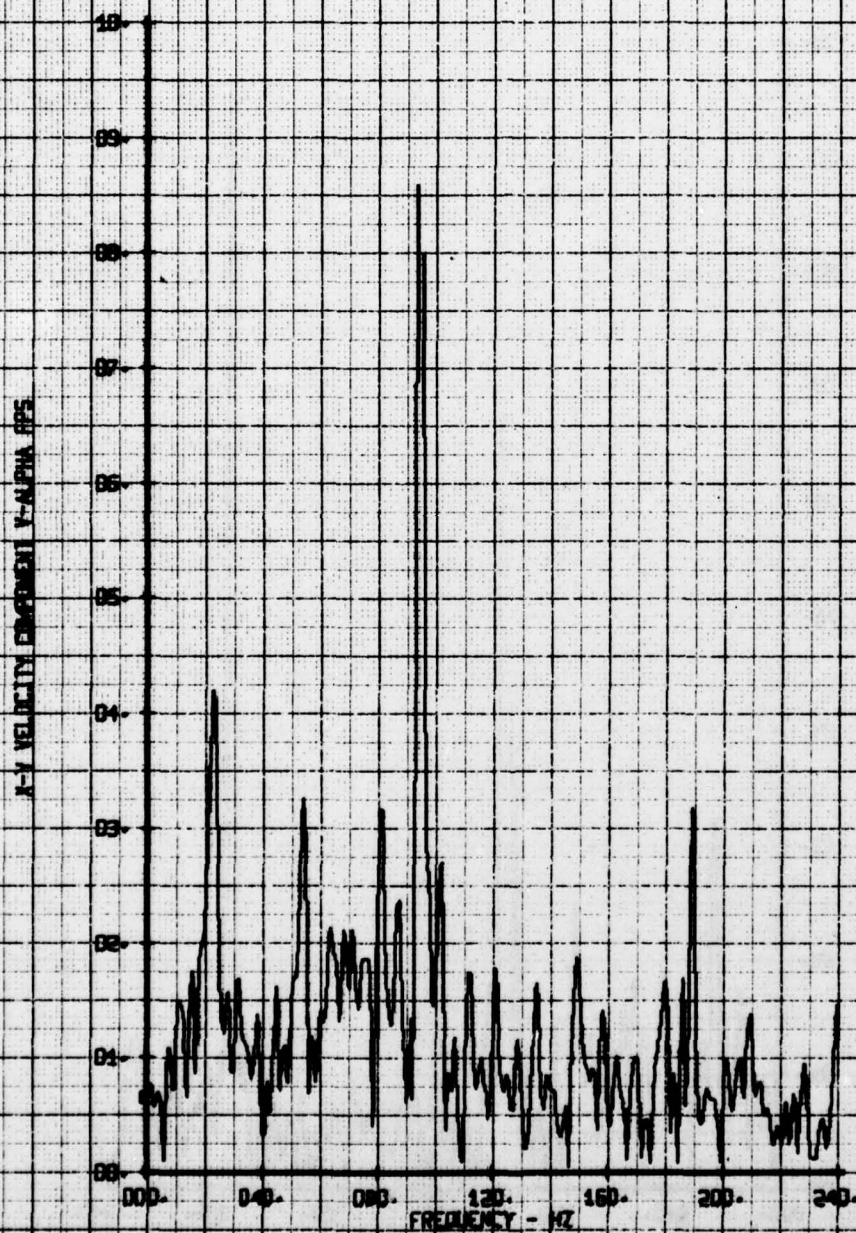
HOT FILM WAKE FREQUENCY ANALYSIS
 BASE CONFIG. 800 FPM DESCENT
 RUN 136 TP 8

LEGEND
 CH 65
 PARAMETER
 V-ALPHA



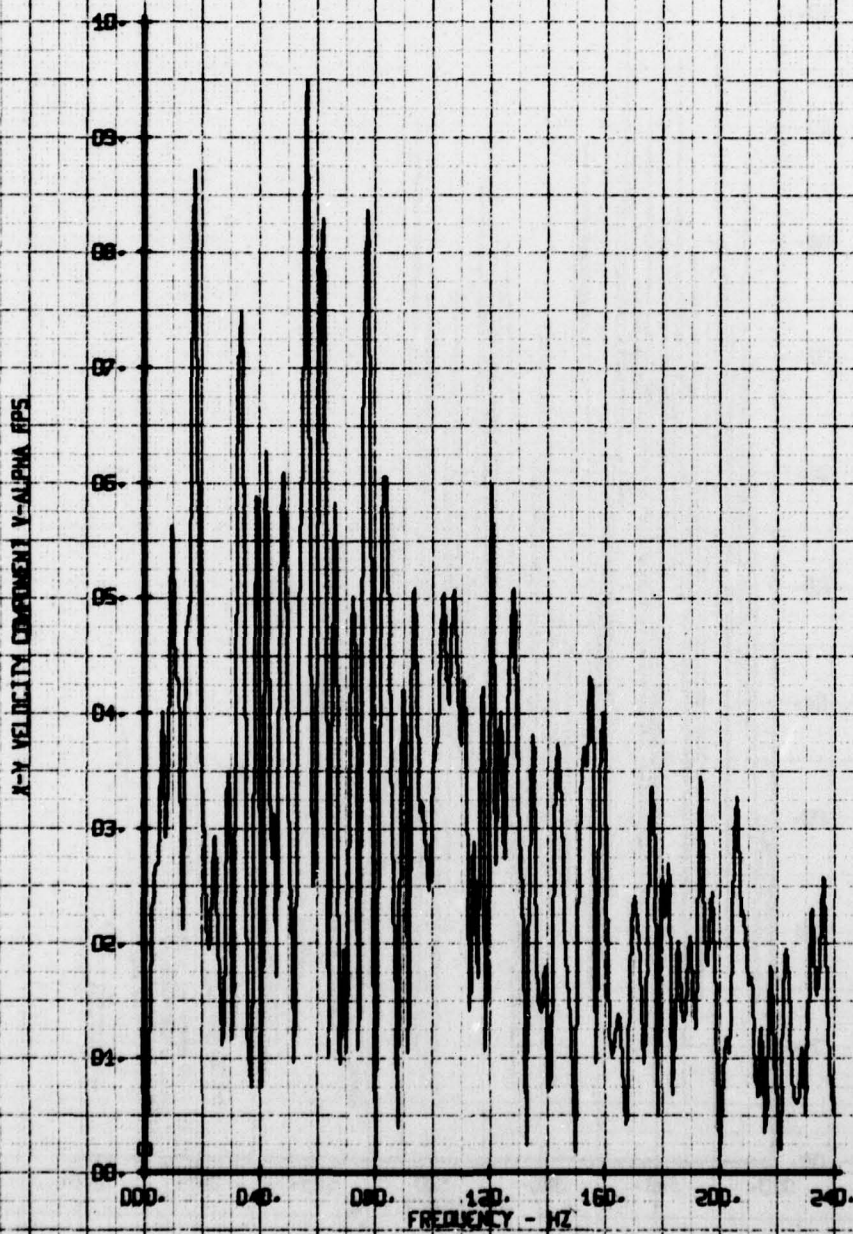
HOT FILM WAKE FREQUENCY ANALYSIS
 BASE CONE TR. 800 FPM DESCENT
 RUN 136 TP 10

LEGEND
 CH PARAMETER
 SS V-ALPHA



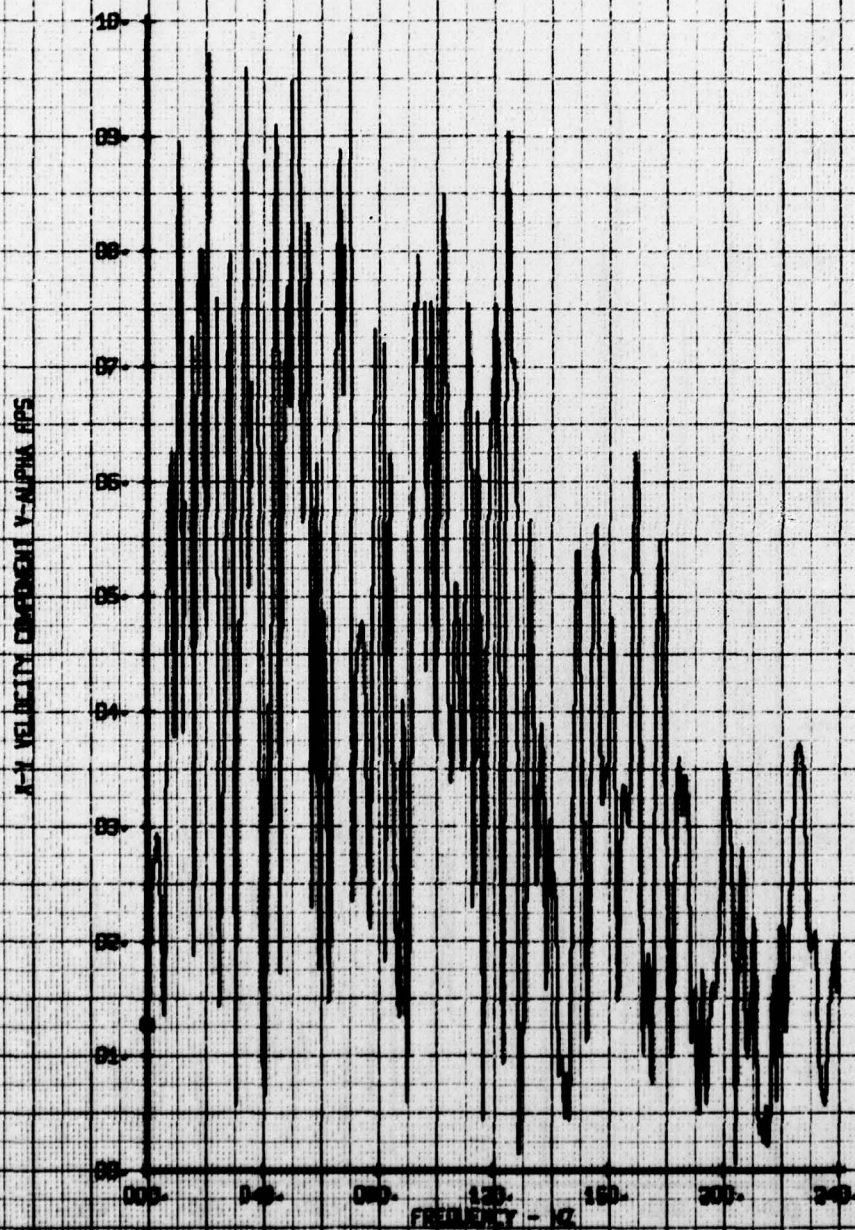
HOT FILM WAKE FREQUENCY ANALYSIS
 BASE CONFIG. 800 FPM DESCENT
 RUN 135 TP 12

LEGEND
 CH PARAMETER
 65 V-ALPHA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 800 FPM DESCENT
RUN 135 TP 14

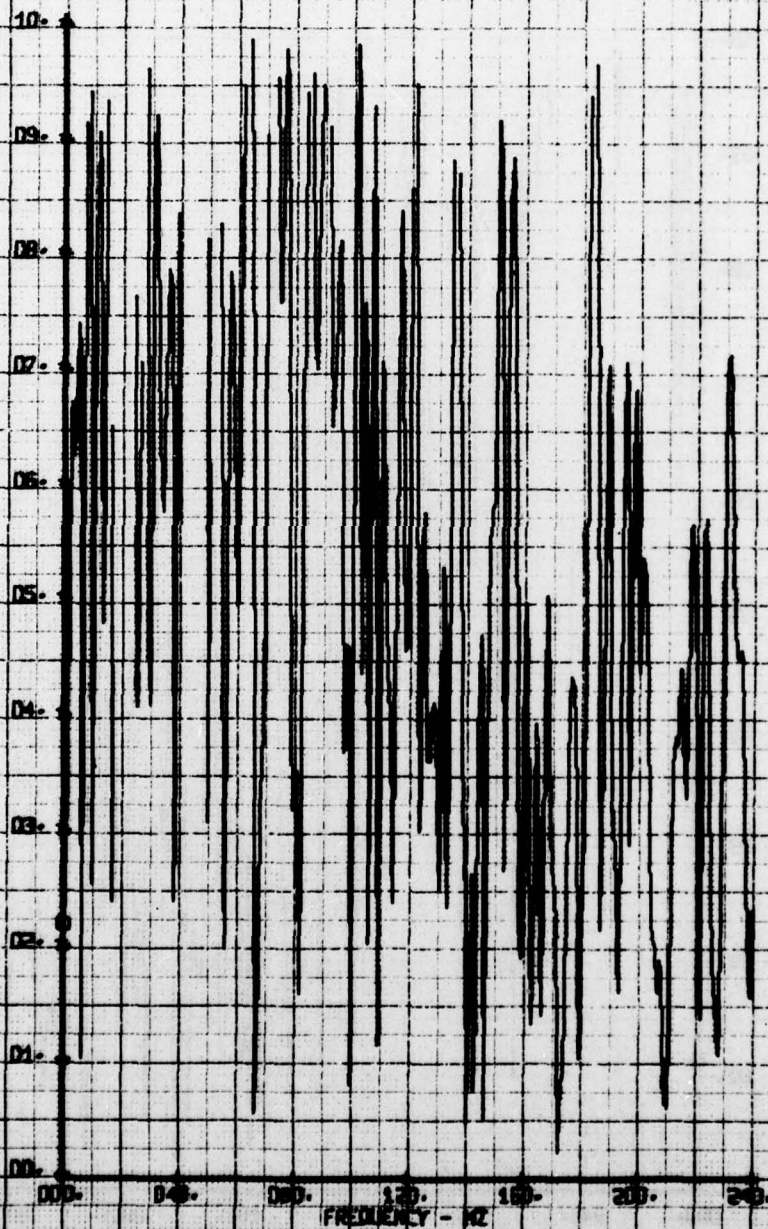
LEGEND
CH 65
PARAMETER
V-ALPHA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 800 FPM DESCENT
RUN 136 TP 17

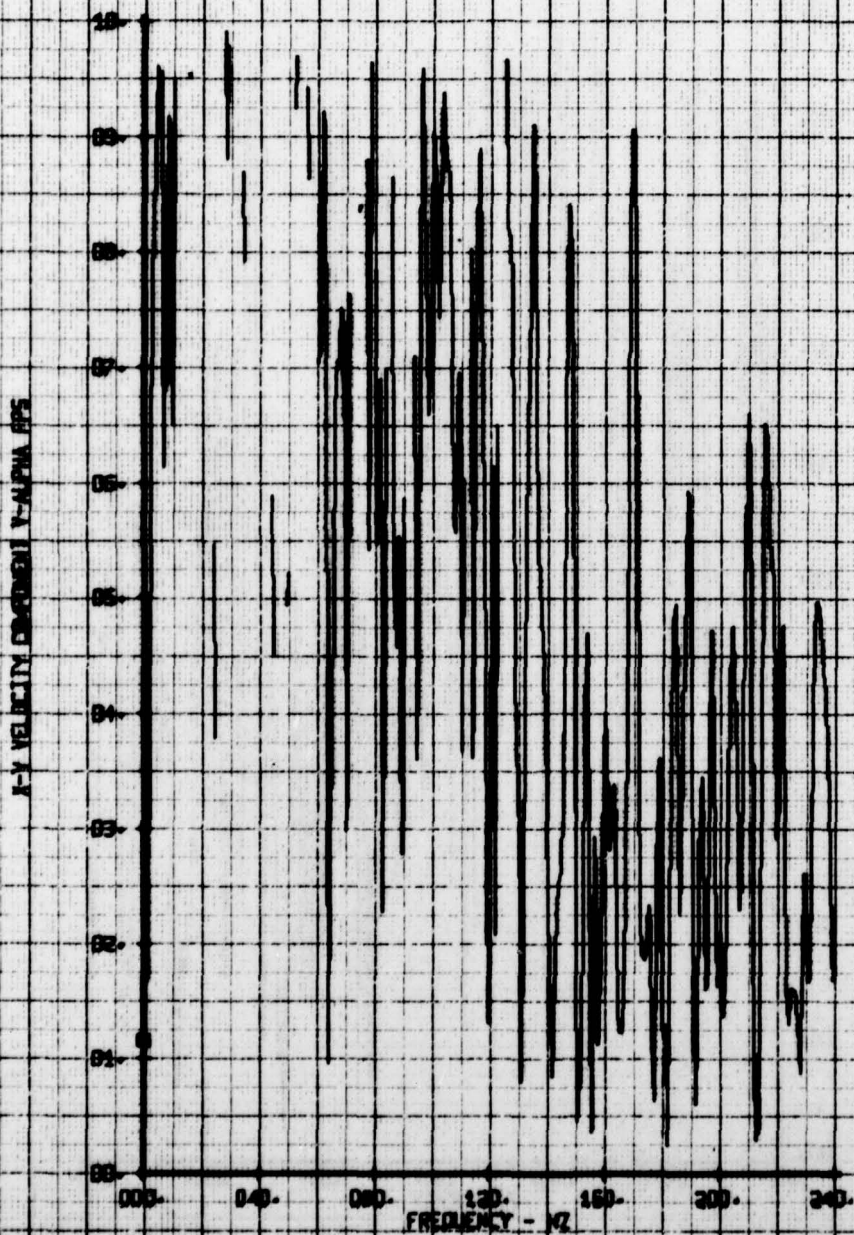
LEGEND
CH PARAMETER
BS V-ALPHA

X-Y VELOCITY COMPONENT V-ALPHA FPS



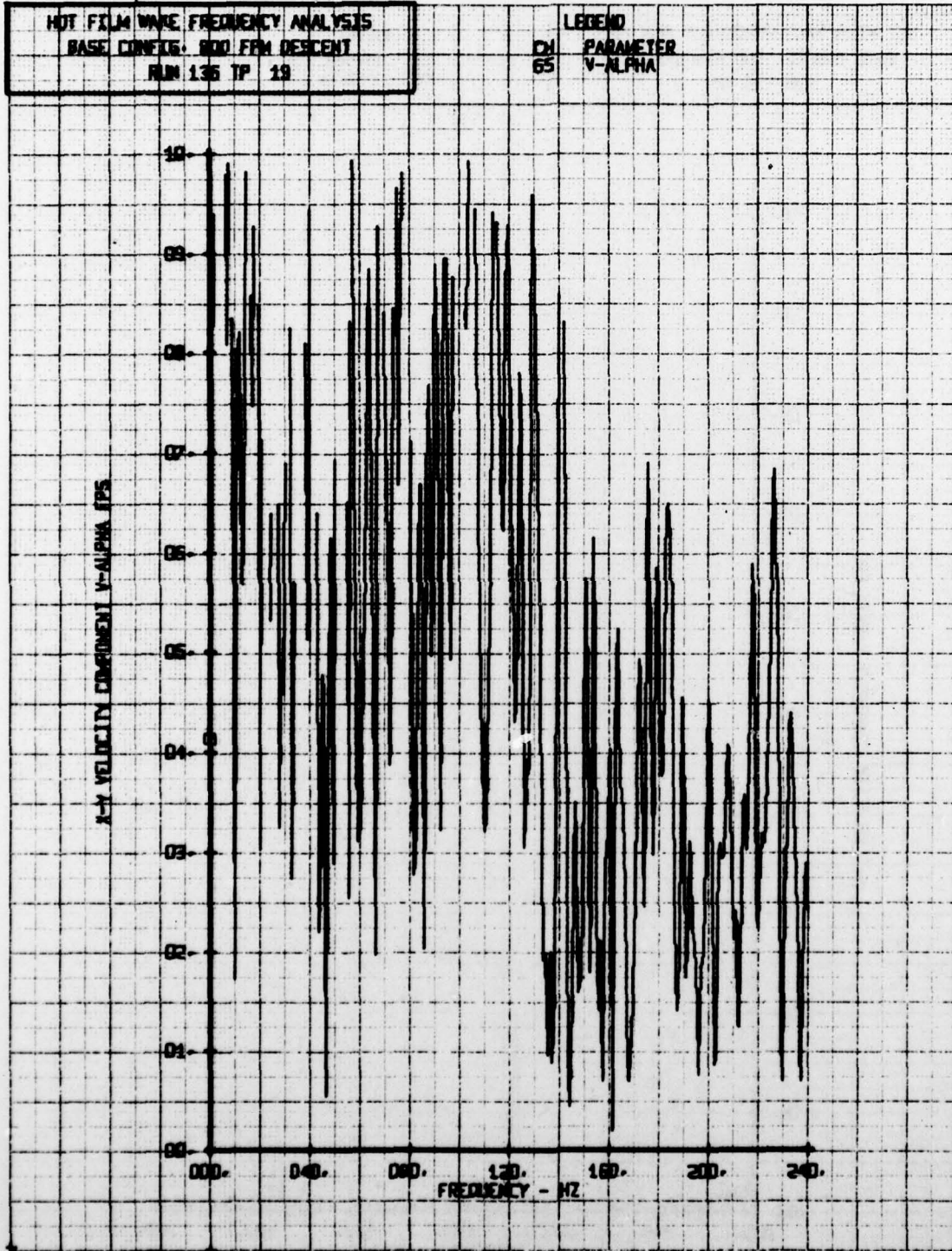
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 800 LPM DESCENT
RUN 136 TP 10

LEGEND
CH PARAMETER
85 V-ALPHA



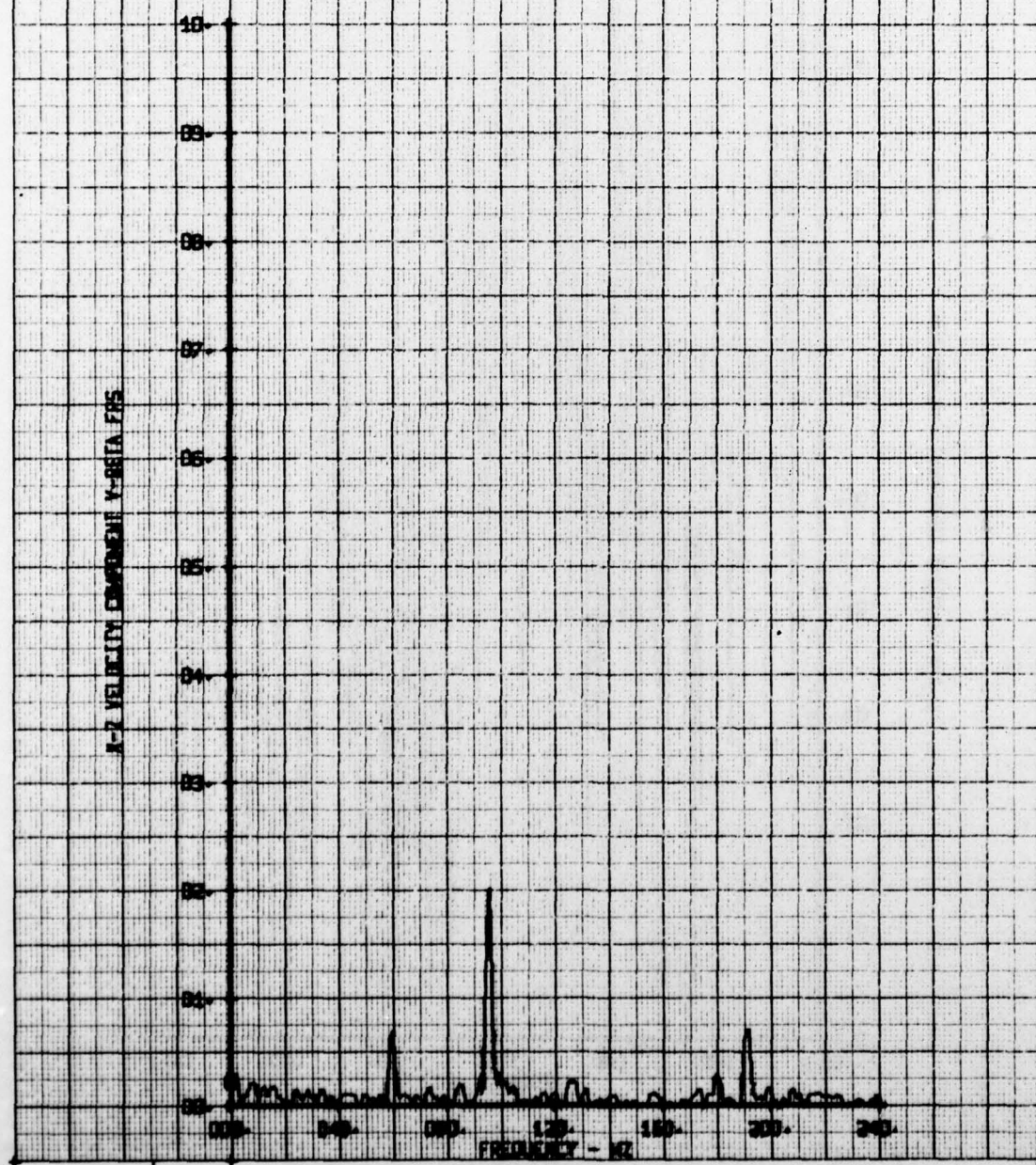
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 800 FPM DESCENT
RUN 136 TP 19

LEGEND
CH 65 PARAMETER
V-ALPHA



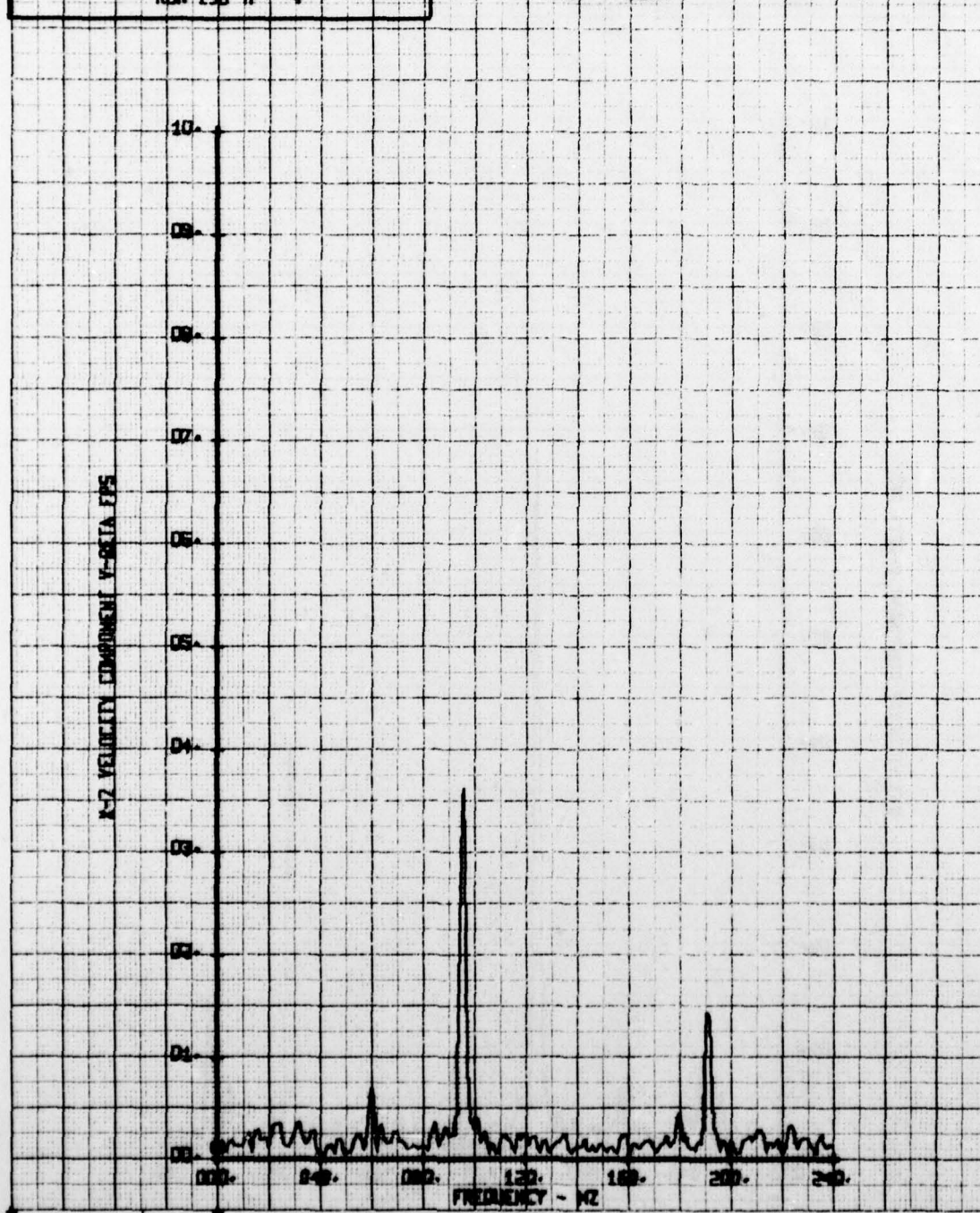
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 800 FPM DESCENT
RUN 135 TP 2

LEGEND
CH 66
PARAMETER
V-BETA



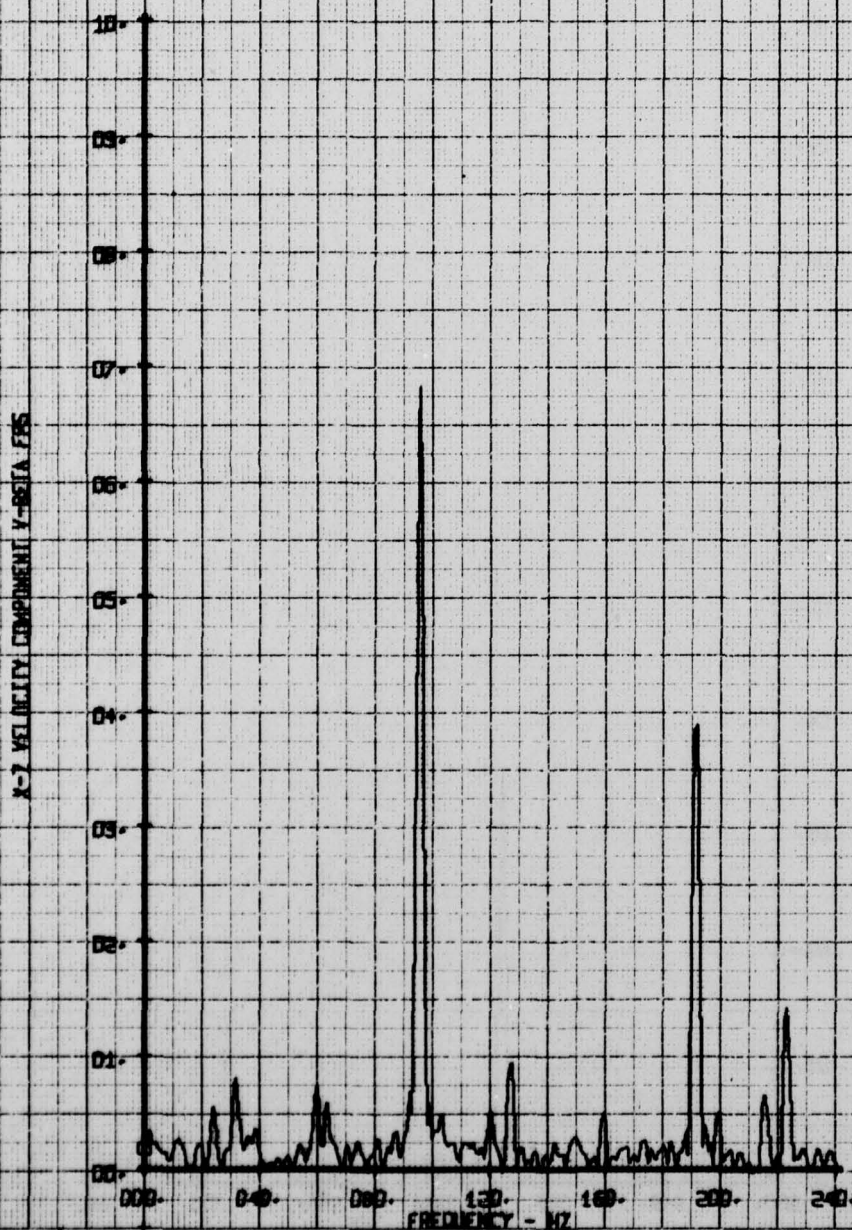
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 800 FPM DESCENT
RUN 135 TP 4

LEGEND
CH 66 PARAMETER
V-BETA



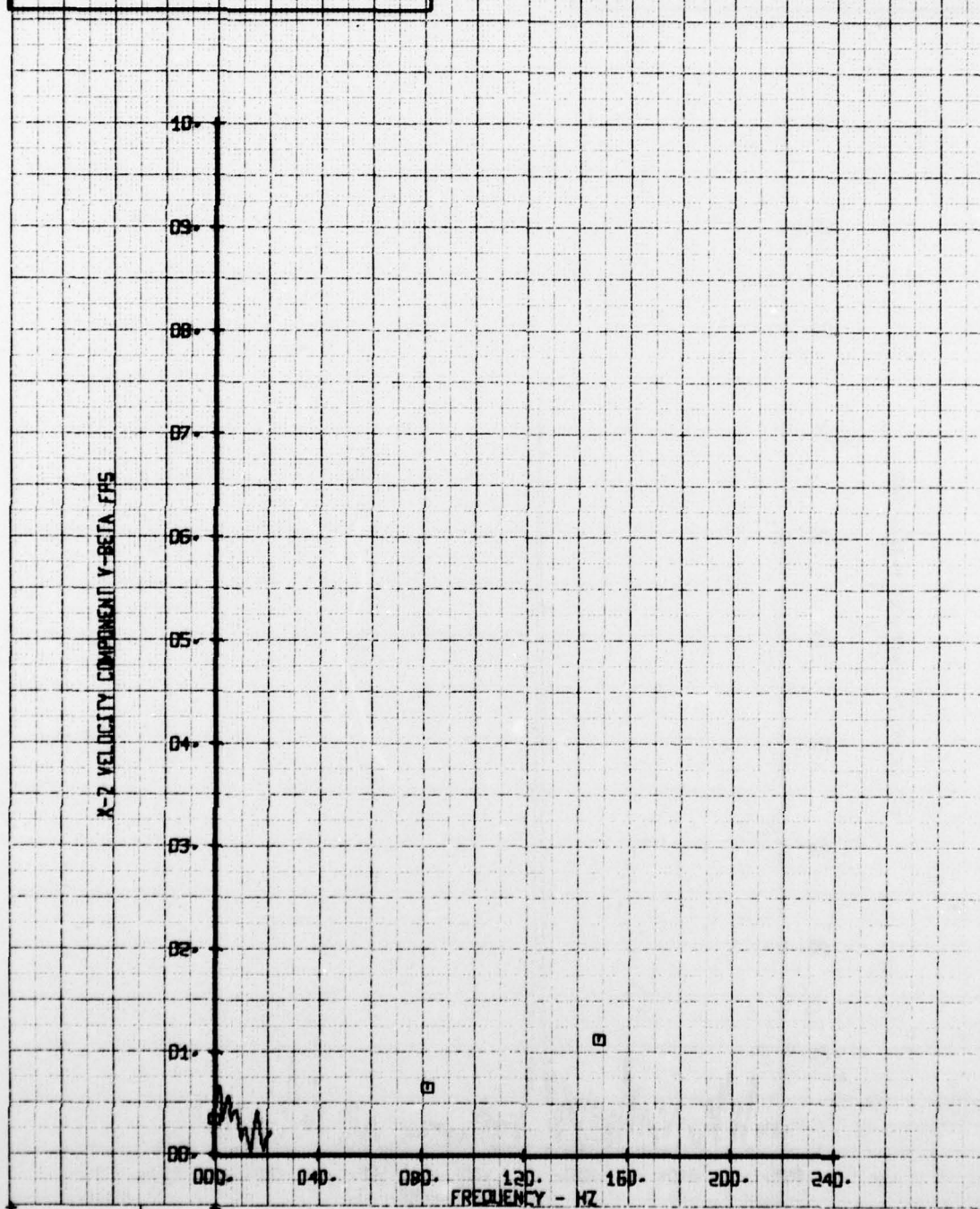
HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG: 900 FPM DESCENT
RUN 135 TP 6

LEGEND
CH 66 PARAMETER
V-BETA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 800 FPM DESCENT
RUN 136 TP 8

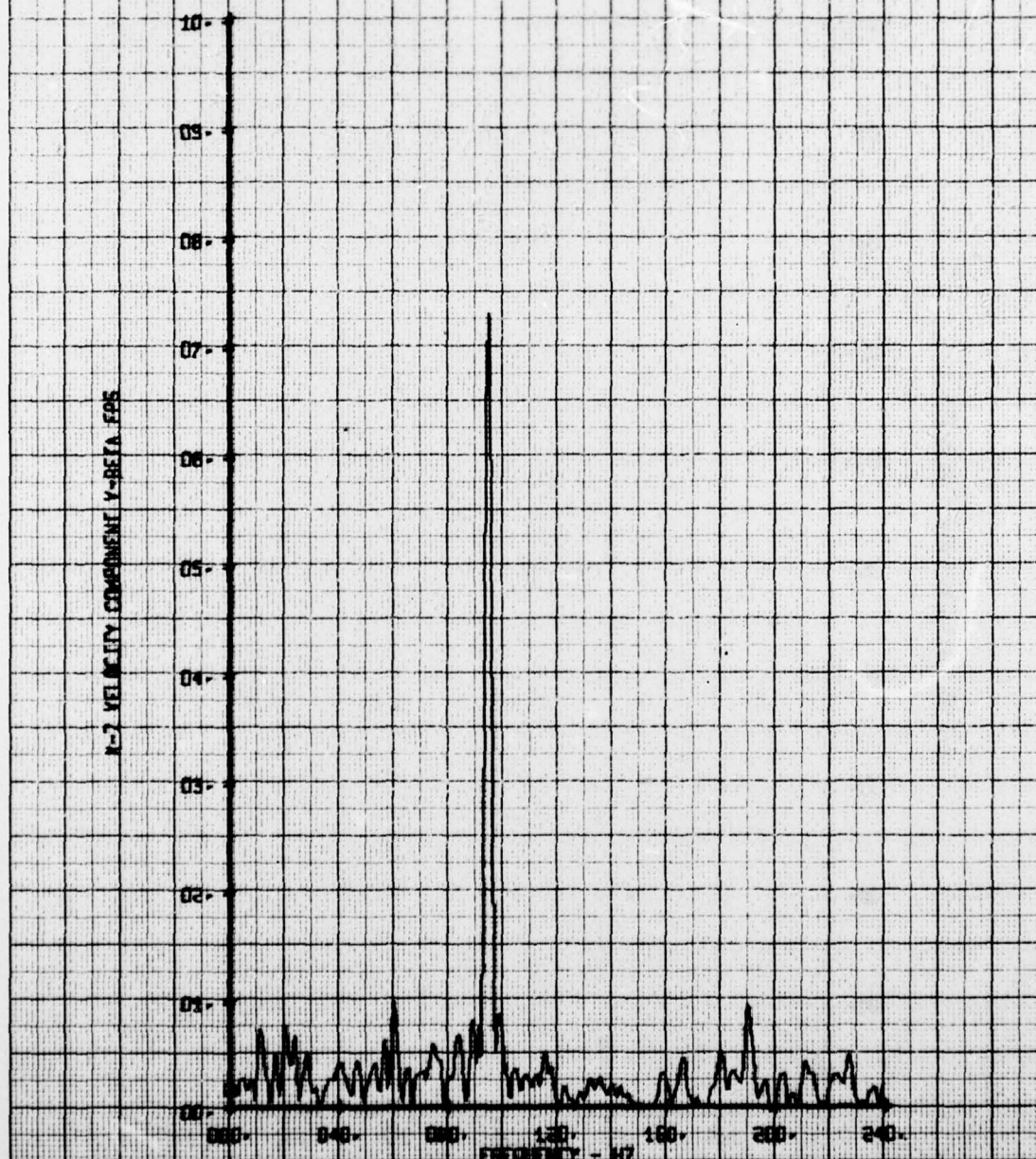
LEGEND
CH. 66
PARAMETER
Y-BETA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG- 800 FPM DESCENT
RUN 136 TP 10

LEGEND
CH 56
PARAMETER
V-BETA

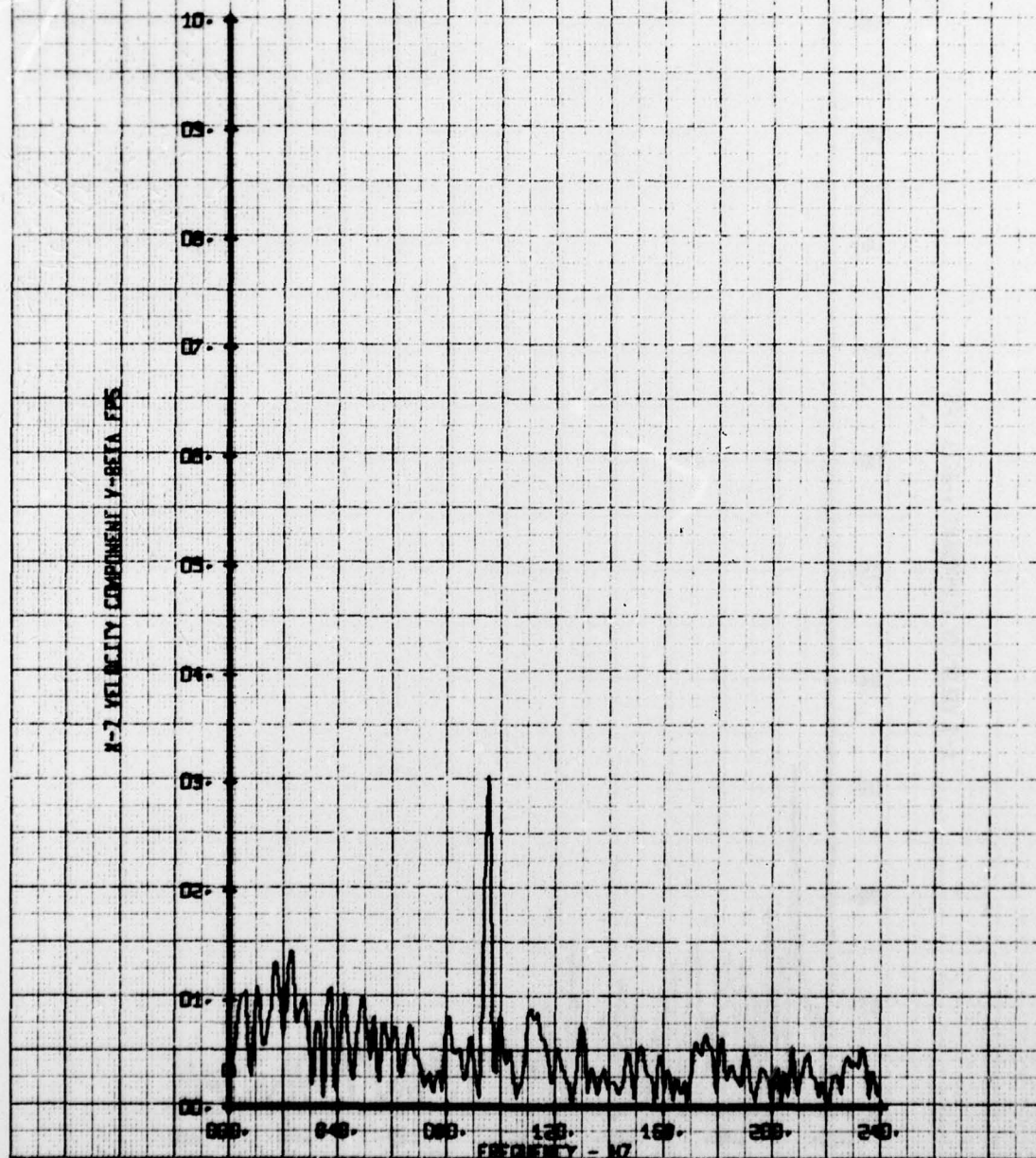
V-2 VELOCITY COMPONENT V-BETA EPS



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG- 800 FPM DESCENT
RUN 135 TP 12

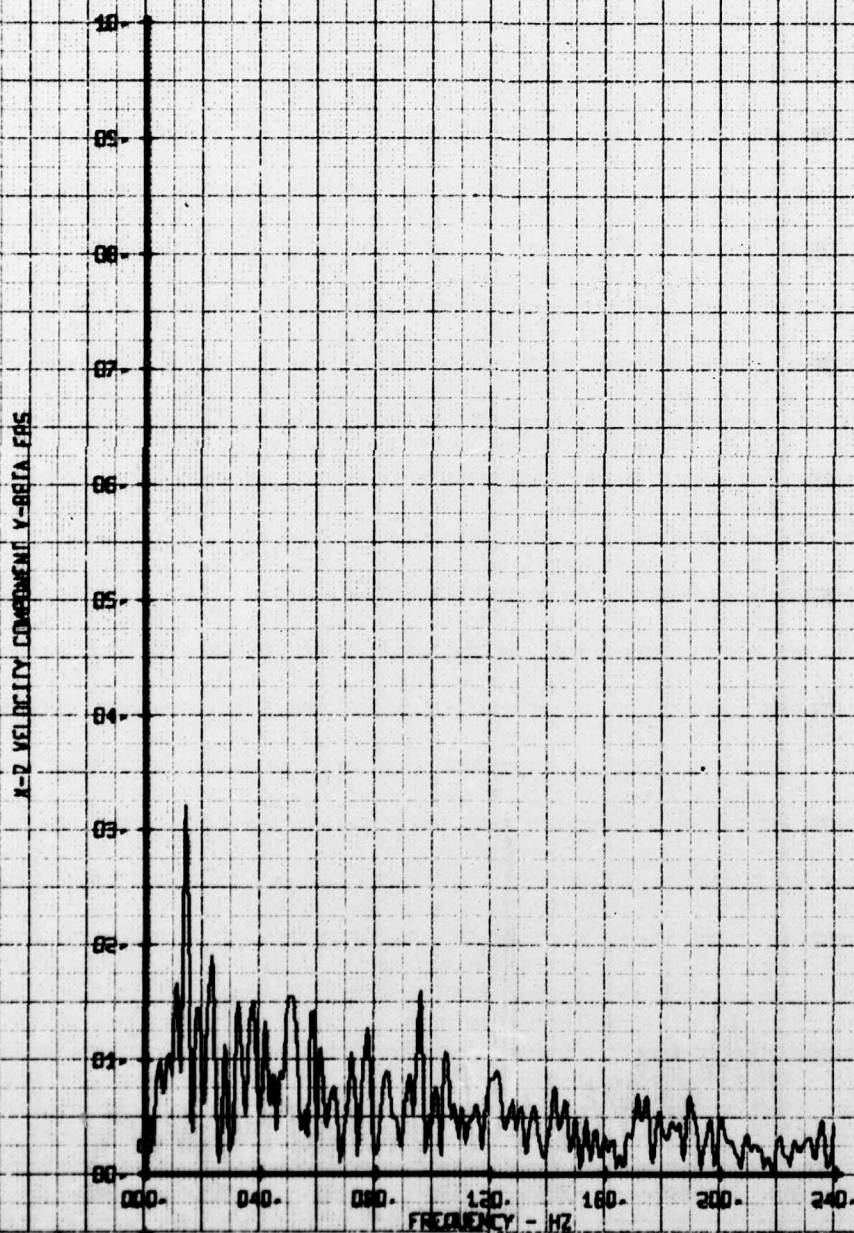
LEGEND
CH 66 PARAMETER
V-BETA

N-2 VELOCITY COMPONENT V-BETA FPS



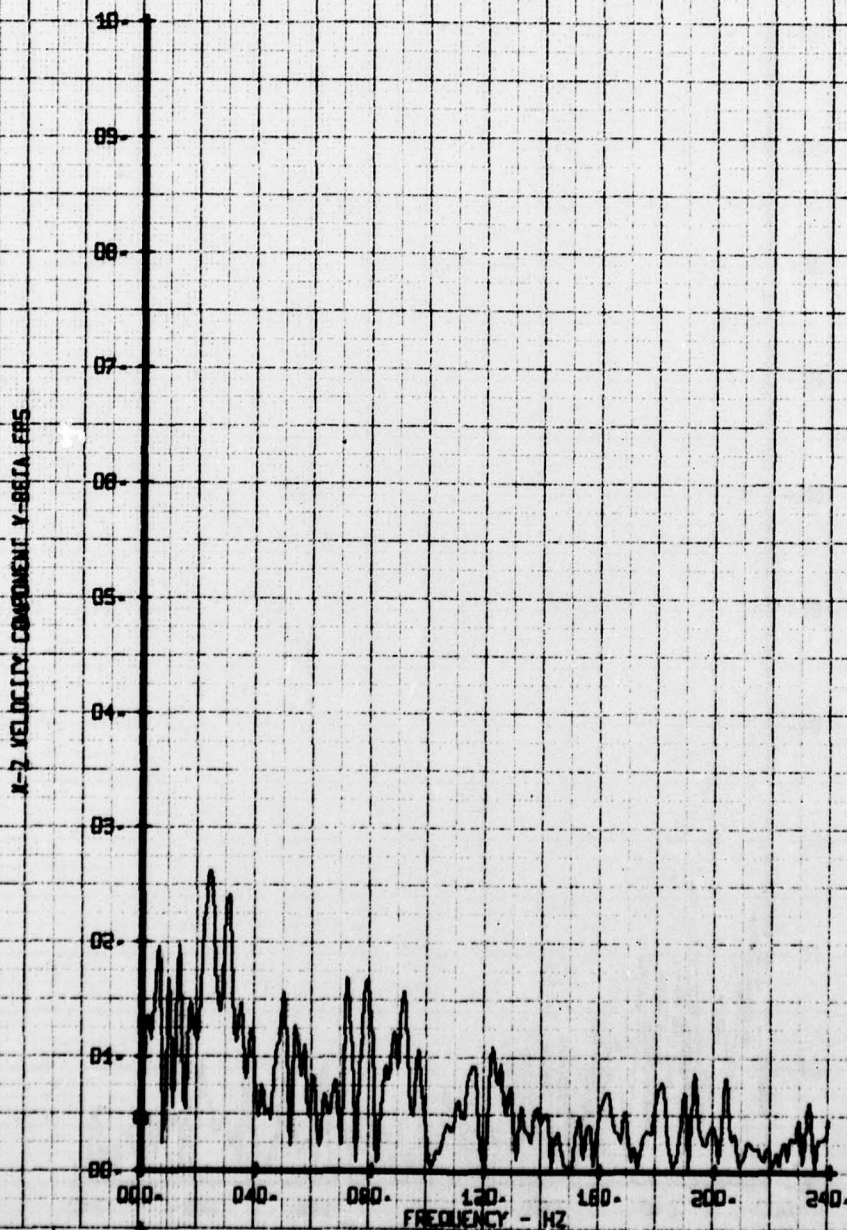
NOT FILM WAVE FREQUENCY ANALYSIS
BASE CORRECTED 800 FPM DESCENT
RUN 136 TP 14

LEGEND
CH 66 PARAMETER
V-BETA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. 800 FPM DESCENT
RUN 136 TP 17

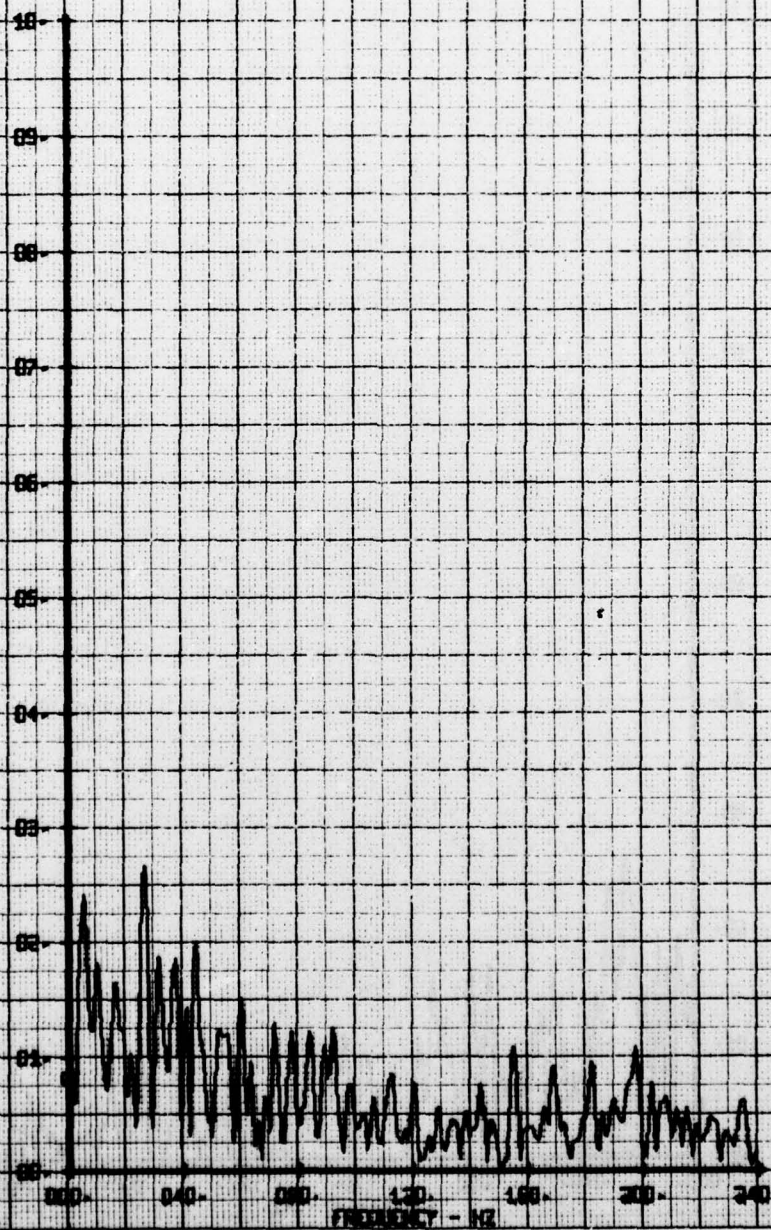
LEGEND
CH 66
PARAMETER
V-BETA



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CORREL: 800 FPM DESCENT
RUN 136 TP 1B

LEGEND
CH 66
PARAMETER
V-BETA

X-2 VELOCITY COMPONENT Y-BETA FSS



HOT FILM WAKE FREQUENCY ANALYSIS
BASE CONFIG. NO. 00 FPM DESCENT
RUN 136 TP 19

LEGEND
CH 66
PARAMETER
V-BETA

